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THE

EDINBURGH MEDICAL AND SURGICAL JOURNAL:

EXHIBITING

A CONCISE VIEW

OF THE

LATEST AND MOST IMPORTANT DISCOVERIES

IN

MEDICINE, SURGERY, AND PHARMACY.

VOLUME FORTY-SEVENTH.

1837.

EDINBURGH:
PRINTED FOR ADAM AND CHARLES BLACK:
LONGMAN, REES, ORME, BROWN, GREEN & LONGMAN, LONDON:
JOHN CUMMING, AND HODGES & SMITH, DUBLIN.

1837.

PRINTED BY JOHN STARK, EDINBURGH.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

No, CXXX.

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ERRATA.

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——— 331, line 16th, *for* organs *read* origins.

NOTICES TO CORRESPONDENTS.

Communications have been received from Sir GEORGE BALLINGALL, Dr WATT, Dr WILSON, Dr KNOX, and Mr SOMERVILLE ALLISON.

The following Works have come to hand:—

A Practical Essay on the History and Treatment of Beriberi. By Assistant-Surgeon John Grant Malcolmson, Madras Medical Establishment. Madras, 1835. 8vo. Pp. 343.

An Inquiry into the Nature and Causes of Lateral Deformity of the Spine; in reference to the Modern System of Female Education. By Edward W. Duffin, M. D. &c. &c. 2d Edition. Carefully Revised and Illustrated by several Lithographs. London, 1835. 8vo. Pp. 94.

The Human Brain; its Configuration, Structure, Developement, and Physiology. Illustrated by References to the Nervous System in the Lower Animals. By Samuel Solly. 12 Plates. London, 1836. 12mo. Pp. 492.

A Practical Demonstration of the Human Skeleton. By George Elkington, M. R. C. S. Demonstrator of Anatomy in the Royal School of Medicine and Surgery, Birmingham. London, 1836. 12mo. Pp. 240.

Report on the Effects of Acrid Poisons. By Thomas Hodgkin, M. D. (From the Report of the British Association for 1835.) London, 1836. 8vo. Pp. 22.

Hygiene Publique ou Memoires sur les Questions les plus importantes de l'Hygiene, appliqué aux professions et aux travaux d'utilité publique. Par A. J. B. Parent Duchatelet, &c. 18 Planches. Tome I. et II. Paris, 1836. 8vo. Pp. 552 et pp. 708.

Traité des Fievres ou Irritations Cerebro-Spinales Intermittentes, d'Apres des Observations recueillies en France, en Corse, et en Afrique. Par F. C. Maillot, D. M. P. &c. Paris, 1836. 8vo. Pp. 420.

Etudes Historiques et Critiques sur la vie et la Doctrine D'Hippocrate, et sur l'Etat de la Medecine avant lui. Par M. S. Houdart, D. M. &c. Paris, 1836. 8vo. Pp. 136.

An Essay on the Origin and Nature of Tuberculous and Cancerous Diseases, read to the Medical Section of the British Association on the 28th August 1836. By Richard Carmichael, M. R. I. A. Dublin, 1836. 8vo. Pp. 56.

Catalogue Raisonnée, or Classified Arrangement of the Books in the Library of the Medical Society of Edinburgh. Instituted 1737. Edinburgh, 1837. 8vo. Pp. 342.

Education Physique des Jeunes Filles, ou Hygiene de la Femme avant le Mariage. Par A. M. Bureaud Riofrey, D. M. &c. Paris, 1835. 8vo. Pp. 352.

Facts and Cases in Obstetric Medicine, with Observations on some of the most important Diseases incidental to Females. By J. T. Ingleby, M. R. C. C. London, &c. London, 1836. 8vo. Pp. 296.

The Principles of Surgery, By James Syme, F. R. S. E. Professor of Clinical Surgery in the University of Edinburgh. 2d Edition. Edinburgh, 1837. 8vo. Pp. 460.

The Fallacy of the Art of Physic, as taught in the Schools, with the Developement of New and Important Principles of Practice. By Samuel Dickson, M. D. Cheltenham. Edinburgh, 1836. 8vo. Pp. 180.

Elements of the Practice of Physic, presenting a View of the present State of Special Pathology, and Therapeutics. By David Craigie, M. D. &c. Vol. I. Edinburgh, 1836. 8vo. Pp. 950.

Lectures on the Morbid Anatomy of the Serous and Mucous Membranes. In two Volumes. By Thomas Hodgkin, M. D. &c. Volume I. on the Serous Membranes; and, as appended subjects, Parasitical Animals, Malignant Adventitious Structures, and the indications afforded by Colour. London, 1836. 8vo. Pp. 402.

Experimental Researches into the Physiology of the Human Voice; a Memoir. By John Bishop, M. Roy. Coll. Surg. Lond. &c. London, 1836. 8vo. Pp. 24.

A Treatise on Tetanus, being the Essay for which the Jacksonian Prize for the Year 1834 was awarded by the Royal College of Surgeons in London. By Thomas Blizard Curling, Assist. Surgeon to the London Hospital. London, 1836. 8vo. Pp. 236.

A Practical Treatise on the Management and Diseases of Children. By Richard Evanson, M. D. Professor of Medicine, and Henry Maunsell, M. D. Professor of Midwifery in R. Coll. of Surg. Ireland. Dublin, 1836. 12mo. Pp 527.

Observations on Derangement of the Digestive Organs, and on its Connection with Disease in other Parts. By William Law, Esq. Fellow of the Roy. Coll. of Surg. Edinburgh. 3d Edition, enlarged. Edinburgh, 1836. 8vo. Pp. 223.

Medical Report to the Managers of the Lunatic Asylum at Aberdeen, 26th May 1836. By John Macrobin, M. D. (Read at the General Meeting held in the Town Hall, 9th July 1826. Aberdeen, 1836. 8vo. Pp. 10.

The Southern Medical and Surgical Journal, Aug. 1836. Vol. I. No. 3. Edited by Milton Antony, M. D. and Joseph A. Eve, M. D. Augusta G. A. 1836. 8vo. U. States.

The American Journal of the Medical Sciences, No. 36, Aug. 1836. Philadelphia, London, Paris, 1836. 8vo.

The British Almanack, 1837; continued Annually. Edited by William Farr. 12mo. Pp. 215.

The Medico-Chirurgical Review, and Journal of Practical Medicine. Edited by James Johnson, M. D. &c.; and Henry James Johnson, Esquire. New Series, No. 50. Being No. 10 of a Decennial Series. October 1836 London.

The British and Foreign Medical Review; or Quarterly Journal of Practical Medicine and Surgery. Edited by John Forbes, M. D.; and John Conolly, M. D. No. IV. October 1836: London. 8vo.

The Medical Gazette, for Session 1835, 1836. No. 51. 17th September. No. 52. 24th September—and for Session 1836, 1837. No. 3. 15th October 1836; to No. 10. 3d December 1836. N. B. Number 1 and 2 not come to hand.

Revue Medico-Chirurgical Anglaise et des Sciences Accessoires, Physique, Chimie, Histoire Naturelle, &c. Publiée en Francais, Par M. Bureaud Riofrey, D. M. P. Residant a Londres. No. 3. 1 Aout 1836. Paris et Londres. No. 4 Septembre 1826: Ibid.

Compte Rendu Hebdomadaires des Seances de l'Academie des Sciences Par. M. M. Les Secretaires Perpetuels. Numero 4, ad Numero 23, second Semestre, Paris 1836, 4to. No 1, 2, 3, n'ont point arrivés.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. JANUARY 1837.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Surgical Report of Cases treated in the Glasgow Royal Infirmary, from 1st May 1835, to 1st August 1836.* By JOHN MACFARLANE, M. D. Senior Surgeon, &c. &c.

PERIODICAL Reports of the Medical and Surgical practice of our public hospitals, if drawn up with accuracy and fidelity, so as to show the various diseases admitted, with the different plans of treatment and their results, whether these may be fortunate or adverse, cannot fail to become useful to the profession, and beneficial to the community. The attempts made in this country towards the fulfilment of this important and desirable object, have been but few, partial, and limited; and, instead of exhibiting a classified and comprehensive view of the *whole* practice of the institutions from which they proceeded, they have been in a great measure confined to short details of a *few* cases, or to elaborate essays on individual subjects. To obviate this defect, and to render the proposed reports valuable for every practical purpose, it is not only necesary that they should contain, according to a regular and uniform plan, every important case, fact, or observation that may occur, but they should also be accompanied with such statistical tables as may be required to show the prevailing diseases, results of treatment, rates of mortality, &c.

It was with these objects in view that I was induced in May 1834, when one of the Directors of the Glasgow Royal Infir-

mary, to move for the appointment of a committee to consider the propriety of publishing, at the expense of the Institution, an annual volume of reports, to include the practice of all the attending Physicians and Surgeons, believing that such a publication would tend to the improvement of medical science and practice, and might probably stimulate the medical officers of other hospitals to promulgate, in a similar manner, the important facts they might from time to time accumulate. In the plan which I sketched, it was proposed, to make it imperative on all the physicians and surgeons to prepare annually, and gratuitously, a report of the cases treated in their respective wards, so arranged as to show in connection the different diseases and injuries of the same organs and textures, their nature, progress, and termination, with the results of the treatment and operations, and such other facts or observations as might be practically valuable; and that each report should be illustrated by statistical tables, containing the age, sex, trade or occupation, residence, disease, duration of hospital treatment, &c. of every patient admitted, so as to exhibit a fair and complete view of the practice of the Infirmary. The managers for the time unanimously approved of the plan; but when it was submitted to a general court of contributors on the 1st Monday of January 1835, it met with unexpected opposition, from *two* gentlemen then present, and was ordered to lie over for future and further consideration. Owing to circumstances which I do not feel myself called upon to explain, the subject has not since been resumed; but I rejoice to observe, that the medical officers of Guy's and St Thomas's Hospitals, two of the largest in the metropolis, have seen the importance of such a measure, and had the spirit to carry it into effect; and I trust that their excellent example will, ere long, lead to similar results, not only here but in every other hospital in the kingdom.

In the meantime, and until an opportunity for recording more extended observations shall occur, I must content myself, at the termination of another period of my attendance as Senior Surgeon to the Royal Infirmary of Glasgow, with shortly detailing such cases, interspersed with practical observations, as have occurred to me, and may appear interesting or valuable.

I. Dislocations.—A considerable number of recent dislocations were admitted, but I shall, on account of their comparative unfrequency, state the particulars of two cases only.

The clavicle from its prominent and exposed position between the shoulder and sternum, and from the very limited motion of its strong articulations, is much more frequently fractured than dislocated.

Case 1. *Dislocation of the clavicle upwards and backwards.*—A robust labourer, when in a state of intoxication, fell down stairs and alighted on his right shoulder, which was supposed to be dislocated, and a number of his associates pulled his arm violently for the purpose of reducing it. Two days after, he applied at the Infirmary for advice. He could use the fore-arm and hand, but not the shoulder. At first sight, the clavicle appeared to be fractured; the rounded projection of this bone, which is always present in dislocation forwards, was hardly perceptible. On more accurate examination, an unusual swelling was observed immediately above, and in close contact with the upper edge of the sternum, which on tracing the clavicle, and especially after the shoulders were pulled back by placing the knee between the scapulæ, was found to depend on a dislocation of that bone into the supra-sternal space. There was a distinct hollow at the sterno-clavicular articulation, and the injured shoulder had fallen forwards, but the functions of respiration and deglutition were not affected, the end of the bone not being so far displaced as to press upon the trachea or œsophagus. The treatment consisted in the application of the clavicle bandage with a pad in the axilla, and sling to the arm. It was found impossible to keep the displaced bone very accurately *in situ*.

Dislocation backwards of the sternal end of the clavicle is of very rare occurrence. Sir A. Cooper has never known it to happen from external injury.* In the case now detailed, although the end of the bone was distinctly drawn into the supra-sternal space, it was not so entirely displaced as to produce any marked pressure on the important parts beneath. Whether the fall which this patient sustained had forced the bone into this situation at once, or whether it was first displaced forwards, and ultimately carried above the sternum, by the violent extension that was employed to reduce the supposed dislocation of the shoulder, it is difficult to determine.

Case 2. *Dislocation of the femur upwards and forwards on the pubis.*—Mrs A. aged 24, admitted 13th December at 7 o'clock P. M. in the eighth month of utero-gestation. Eleven hours previously, when going down stairs with a large vessel of water in her hand, her right foot slipped, and, to recover her balance, she threw her body violently backwards, and fell on her right hip. She was unable to rise or to make any use of the limb, which was shortened one inch, and permanently everted. Abduction and rotation outwards could be partially performed, but attempts at adduction or rotation inwards, were productive of acute pain. The globular head of the *os femoris* was distinctly recognized on the pubis, and was seen as well as felt, to

* On Dislocations and Fractures, 4th edition, p. 369.

move in unison with the shaft of the bone. The nates of the injured side was flattened, and there was a distinct hollow in the situation of the acetabulum.

Reduction was easily accomplished. She was placed on the left side in bed; a broad sheet was passed between the thighs to fix the pelvis; extension was applied above the knee, and in less than two minutes, the head of the bone was felt to move, when, on sudden rotation inwards, reduction was effected. She left the house in about a week quite well.

Several years ago, I saw a case of old unreduced dislocation upon the pubis, which had been mistaken for a fracture. Sometimes both injuries are combined, as in extensive fracture of the acetabulum, to a case of which I shall afterwards allude more particularly.

The following cases show the distance of time from the occurrence of dislocation at which reduction was accomplished.

Case 3. *Dislocation of the humerus into the axilla reduced on the 14th day.*—S. M. aged 45, labourer, admitted November 1st. Fourteen days ago, fell on his right shoulder when descending a hill, and was told by a surgeon that there was neither fracture nor dislocation. The head of the bone was felt in the axilla, and all the other diagnostic marks of dislocation were present. He was a very muscular man, and it was deemed proper to nauseate him with tartar emetic, before the extension was applied. Reduction was effected by means of pullies in six minutes. In ten days the functions of the arm were restored.

Case 4. *Dislocation of the humerus into the axilla, reduced on the 23d day.*—W. R. aged 40, wright, admitted December 5th. Three weeks previously he fell on his right hand from a scaffolding only a few feet from the ground. The head of the bone was felt unusually low in the axilla, and although a very muscular man, the subacromial hollow was very apparent. The elbow was widely separated from the side, and the joint was partially moveable, but the surrounding soft parts were hard and rigid.

On the 7th, after repeated frictions, and free motion of the dislocated head of the bone, three unsuccessful attempts were made with the pullies. He was then bled from the arm, and nauseated with tartar emetic, and on the approach of syncope another effort was made, which proved successful after the extension had been continued about twenty minutes. A good deal of inflammation followed the reduction, and nearly two months elapsed before he regained complete power of the joint.

Case 5. *Dislocation of the humerus into the axilla, reduced on the 36th day.*—A. B., aged 52, labourer, admitted January 24th. Fell on the ice five weeks ago, and dislocated the left

humerus into the axilla. The head of the bone had some power of motion, which was increasing, and there was less rigidity than usual of the surrounding soft parts.

On the 25th, he was nauseated, and at the third attempt the extension having been continued nearly half an hour, the bone was reduced. He was dismissed on the 8th of February, having nearly regained the full power of his arm.

Case 6. *Dislocation of the femur backwards, reduced on the 12th day.*—J. M., aged 60, labourer, admitted on the 31st July 1835. Ten days ago, when running, fell upon his right hip, and a surgeon made several unsuccessful attempts to reduce the dislocation. The right leg was inverted, about three quarters of an inch shortened, and, when rotation was attempted, the globular head of the femur was felt to move in the ischiatic notch.

On the 2d of August, after he had taken four grains of tartar emetic in divided doses, extension at the ankle was made by pullies, and maintained for twelve minutes, when, on its being suddenly relaxed, the bone was lifted up by a towel passed under the thigh, and reduction accomplished. He was confined to bed for eight days, and then allowed to walk a little. On the 18th, he left the infirmary cured.

Case 7. *Dislocation of the femur upwards, reduced on the 65th day.*—J. W., aged 53, mason, fell from a scaffolding about the height of a storey more than two months ago, and dislocated the right femur on the *dorsum ilii*. He was seen in less than an hour after the accident by a noted bone-setter, who pretended to have reduced the luxation. The lameness not being relieved, some weeks after he applied to a surgeon, who detected the displacement. The limb was nearly two inches and a half shorter than the other, and immoveably inverted, the hip was flattened, and the trochanter thrown forwards and upwards; but the head of the bone could not be distinctly felt. From the patient's account, as well as from the rigid and condensed state of the soft parts, it appeared that the accident had been followed by severe inflammation.

After repeated frictions for two days, nausea was excited, and the pullies applied, and by increasing the extension slowly and steadily for nearly half an hour, the head of the bone was restored to its natural cavity. In six weeks he could walk without lameness.

These cases are not brought forward as examples of very old dislocations in which reduction has been successful; they are simply intended to show how safely even powerful extension may be employed if slowly and steadily applied. The ultimate success will in part depend on the nature of the articulation, the length of time that has elapsed since the displacement, and

the condition of the joint, as regards the mobility of the bone and rigidity of the surrounding soft parts. When acute inflammation results from the primary injury, the parts become more or less condensed, and the displaced bone acquires new attachments. But even in cases by no means recent, these may in general be safely overcome, and they ought not, therefore, to form an insuperable obstacle to our attempts at reduction. When these effects of producing inflammation are present, friction, free motion, and handling of the joint, ought to be employed, after which, muscular resistance is the chief power to be overcome; and in old as well as in recent luxations this will often require the enervating aid of blood-letting and tartar emetic, before reduction can be accomplished.

II. Fractures.—I shall select two cases only of simple fracture, out of an immense number that were treated. In the one, the injury was extensive and complicated; and the other, in consequence of sloughing, became compound, and required the ends of the bone to be excised before union could be effected.

Case 8. *Fracture of the pelvis, secondary luxation of the femur—Cure.*—P. O. aged 63, quarrier, admitted June 20th 1835. About five hours previously, he was thrown down while driving a loaded cart, and dragged some distance by the halter, after which one of the wheels passed over his pelvis. The last of the true and two of the left false ribs were fractured. The right leg was everted and shortened an inch and a half, and attempts to move it produced excruciating pain. The round head of the femur was felt in the groin below, and to the outer side of Poupart's ligament, and on applying extension, it was easily brought down to its natural position; but this and every other attempt to move the joint produced loud and extensive crepitus. On careful examination, the crest of the right ilium was found obliquely fractured, the anterior spinous processes and a portion of the body of the bone being detached. The fracture also involved the pubes, and extended through the acetabulum in various directions, so as to afford strong crepitus when the hand was applied to any part of the pelvis on that side, In consequence of the comminution of the acetabulum, the head of the femur could not retain its natural position, but was thrown forwards on the pubes; and although it was easily replaced, yet the moment the extending power was withdrawn, it slipt out with loud crepitus, and communicated a sensation to the hand, as if the acetabulum was divided into a number of loose pieces.

It was found necessary, after the urine was drawn off, not only to apply a broad bandage to the pelvis, to steady the fractured bones, but also to extend the limb, and keep it fixed by Des-

sault's apparatus to prevent its retraction. On the 20th of July, the fractures were united; the limb was of its natural length, but slightly everted, and the joint admitted of considerable motion. When he was dismissed on the 18th of August he could walk without crutches.

The operation of resection of the fractured ends of the humerus was, in the following case, the only treatment that could have been adopted with success. Neither the introduction of a seton, nor the other operative measures occasionally employed were applicable, because the ends of the bone were diseased.

CASE 9. *Fracture of the humerus, pseudarthrosis, resection, cure.*—J. B., aged 20, labourer, was admitted by my predecessor, Dr M. S. Buchanan, on 25th January 1825, and came under my care on the 1st of May following. He had sustained a simple but oblique fracture of the right humerus, about two inches and a half above the elbow, his arm having been caught by a plash-wheel and twisted over the roller, when at work in a print-field. The parts were contused and abraded, but there was no wound. Carded cotton, bandages, and splints were applied.

A good deal of sloughing and suppuration took place, and on the 1st of March, a small portion of the lower end of the fracture projected, which was removed, along with a fibro-cartilaginous substance, which was interposed between the ends of the bone.

On the 1st of May, when I first saw him, there was on the outer side of the arm, over the fracture, a patch of ulceration, three inches in diameter. The arm was excessively emaciated, the fore-arm bent to a right angle, the elbow contracted, and the fracture quite moveable. There was no swelling or irregularity to indicate the existence of callus; on the contrary, when the probe was passed through a thin layer of spongy granulations, caries of both ends of the fracture was detected.

On the 3d of June, I made a perpendicular incision through the ulcer on the outside of the arm, turned out the fracture, and removed by the chain-saw an inch of each end of the bones, which were carious. The disease extended upwards, on the outer side of the bone for more than two inches; but as it seemed to be superficial, I was averse to remove the entire shaft of the humerus to this extent. I therefore paired it off with a strong curved knife, closed the wound, elevated the elbow to keep the ends of the bone in contact, and applied a hinge splint.

His health continued good; he was allowed a generous diet, and he took daily exercise in the airing-ground of the hospital; but it was not till the middle of November that any decided improvement was visible. At that time, the ulcer began to contract, and about the 20th of December it was

healed, the fracture became less movable, and on the 24th it was united. On the 2d of January, being anxious to exercise his arm, he lifted a five pound weight in his right hand, and began to swing it. He felt acute pain in the site of the old fracture, and on examination the bone was found to have again given way. By keeping the parts firmly supported and at rest, union was re-effected about the end of February. He was dismissed on the 15th of March, and since that time, the strength of his arm and the mobility of his elbow-joint have gradually increased.

The want of osseous union in fracture must depend either on constitutional or local causes. Of the former, old age, general debility, scrofula, cancer, &c. are the most frequent. None of these were present in the case now detailed; on the contrary, the defect was evidently local. The sloughing, suppuration, and ulcerative destruction of the soft parts near the fracture, the interposition of muscular or tendinous substance between the ends of the bone, and their subsequently becoming carious, were sufficient to explain the primary non-union; and the tardy attempts at consolidation after the fracture was excised, appeared to be connected with the wasted condition and imperfect vascular action of the part, and with the presence of an ulcer, which, from the counter-irritation it excited, and the discharge it produced, must have retarded the formation of callus.

A defect in the accurate adaptation of the fracture, or in the apparatus employed to prevent motion, are the most common obstacles to union. In this way only can we explain the fact, that false joints after fracture are most frequently met with in the *humerus*, because we know it to hold good as a general rule, that diseases and injuries of the upper extremities are more manageable than those of the lower. In many cases I believe lacerated portions of muscles or tendons get between the ends of the fracture; but these, particularly the former, become absorbed by the firm pressure employed. It is different, however, when the bones are not accurately approximated, or when the intervening substance does not yield to the pressure to which it is subjected.

The chief points to be attended to in the treatment of *compound* fractures where the limb is to be preserved, are, the accurate closure of the wound, the firm and steady support of the injured parts, and the avoidance, even when inflammation and suppuration are present, of the frequent removal of the dressings, and of the use of lotions, poultices, and other relaxing applications. I shall narrate two cases of a considerable number, which, by attention to these principles, were successfully treated.

CASE 10. *Compound fracture of the right tibia and fibula. Cure.*—J. C. aged 12, collier, was admitted by Dr M. S. Buchanan on 25th April 1835, and came under my care on the 1st of May following. When ascending the shaft of a coal-pit, he fell out of the basket, and his right leg was caught by a hook. He was raised about ten fathoms, hanging by the leg, when, his position having been discovered, he was lowered to the bottom of the pit before he could be extricated. There was a lacerated wound three inches in length, extending upwards from the external *malleolus*, communicating with the *fibula*, which was fractured in two places, and with the *tibia*, which was comminuted. The finger could be passed between the bones to the opposite side, and down to the ankle. A consultation was held, and amputation recommended; but the boy's friends would not consent. The wound was therefore closed, and the limb put up with splints in the straight position.

May 12th.—The dressings were removed for the first time, being the 17th day since the injury. No inflammation or swelling was recognized; the wound was adhering, except at a small point that was granulating. About two drachms of purulent matter were found on the dressings.

27th. Second dressing; the fracture was united, and the wound closed.

On the 5th of June, he began to walk with the aid of crutches, and on the 24th, he was dismissed cured.

CASE 11. *Compound fracture of the left tibia; cure.*—E. S. aged 58, labourer, admitted May 4, 1835, on account of a compound fracture of the tibia, about three inches above the ankle. The injury was produced by a loaded cart being overturned upon the limb. The integuments were extensively lacerated, the fracture was oblique, and the ends of the bone so displaced as to require a good deal of force to bring them into accurate apposition. For several days the febrile excitement was high, and he complained acutely of pain. The usual constitutional treatment was adopted, and the local symptoms were relieved by dividing two or three folds of the bandage. When the dressings were removed for the first time, on the 20th, the wound was healed, and at the next dressing on the 2d of November, the fracture was united. He was dismissed on the 26th.

In several other cases of compound fracture, both of the upper and lower extremities, one of them involving both legs, the advantages of rarely interfering with the dressings during the progress of treatment were equally apparent. When partial sloughing or suppuration ensues, the same precautions are observed, and the parts are dressed with camphorated oil and cotton.

In the next case the injuries were numerous and extensive.

One of the legs was amputated; but gangrene attacked the other, and proved fatal.

Case 12. *Compound fracture of the right tibia and fibula; primary amputation; gangrene of the left thigh; death.*—M. K. aged 21, admitted September 22d at 2 o'clock, A. M. Four hours previously, while at work in a bleachfield, her apron was laid hold of by the teeth of a pinion-wheel, and both her legs drawn in between the wheel and rollers, where the wet yarn is passed through. There was produced a compound comminuted fracture of the right tibia and fibula two inches below the knee; the wound was four inches in length and ragged, and it admitted the finger deeply among the muscles, which were extensively disorganized. There was a lacerated wound of the left thigh commencing four inches above the knee, near the inner margin of the *rectus* muscle, which passed in a spiral direction to the head of the fibula. The muscles were exposed, and at two points the femoral artery was laid bare. On the outer side of the same thigh there was an irregular contused and lacerated wound several inches in extent, and a similar wound above the ankle, and on the dorsum of the foot. The little toe was torn off.

An hour after admission, she was carried into the house surgeon's room, which was comfortably heated, and circular amputation performed below the right knee; about an inch and a half of the lacerated integuments and a portion of the contused muscles were included in the stump. She bore the operation well, and lost only about four ounces of blood. The wounds of the left thigh and leg were dressed in the usual manner.

The symptoms were favourable till the 24th, when, in consequence of severe pain in the left thigh, and a bloody serous discharge, the dressings were removed, and gangrene found to have commenced. The integuments from the knee to the ankle were emphysematous, and of a bluish mottled appearance, and the edges of the lacerated wound were sloughy. The gangrene was confined to the leg and lower third of the thigh. In the evening a consultation was held, and amputation above the middle of the thigh was recommended, but not urged upon the patient. She refused to submit. The gangrene extended rapidly to the integuments of the abdomen, and she died on the following morning at 9.

On inspection, the integuments, as high up as the *umbilicus*, were in a state of gangrene; the cellular tissue, both subcutaneous and inter-muscular, was loaded with air and bloody serum. The superficial muscles were softened and of a dirty brown colour. The stump was healthy.

This woman might have had a better chance of recovery had both limbs been amputated soon after the injury. The wounds and contusions of the left thigh and leg were so numerous and

severe, that no reasonable prospect of its ultimate preservation could be entertained. She bore the first operation well, and seemed to rally after it, and had the second one been performed then, or in an hour or two, although from the full and muscular state of the thigh it would have been more severe than the first, it would have afforded a better chance of life to the patient. After gangrene had begun, the success of amputation was still more doubtful; even then, however, from her previous robust health, and the local origin of the gangrene, the case was not altogether hopeless.

CASE 13. *Compound fracture of the right tibia and fibula; gangrene; amputation unsuccessful.*—R. K. aged 56, porter, admitted March 10th. When carrying a heavy trunk from the mail-coach office, his foot slipped on the curb-stone, and he fell forward, his right foot being violently twisted between the wheel of a carriage, and the edge of the pavement. Both bones were fractured and comminuted, 2½ inches above the ankle. There was a wound on the inside, which admitted the finger to the fractured bones, and from which venous hemorrhage took place. He had been in the daily practice of drinking ardent spirits to excess. The fracture was put up in the usual manner, and he was ordered a grain of opium twice a day, and a small allowance of spirits.

During the night of the 12th, he became delirious, and tore off the bandages. The pulse was 108, feeble, but there was little or no tremulous motion of the hands. The gangrene had commenced in the wound, and was extending rapidly, and the integuments were livid, vesicated and emphysematous. Immediate amputation was had recourse to above the knee. In forming one of the flaps, a quantity of bloody purulent fluid escaped, and some points of the muscles were soft and of a dark colour. He bore the operation well, but appeared over-excited, and inclined to talk incoherently before he left the table. The delirium increased, and he could with difficulty be kept in bed. He died on the following morning at nine o'clock, about thirty hours after amputation. It was found that gangrene had begun in the stump.

I have seen several cases in which amputation was performed during the progress of traumatic gangrene, but in none was it successful, when, from previous and habitual dissipation, the constitution had become impaired. There is in such circumstances not only immediate danger to be feared from the shock of the operation and loss of blood, but there is a greater risk of gangrene recurring, and of a train of nervous symptoms analogous to those of *delirium tremens* supervening. On the 10th of December 1834, I amputated the arm of a person of this description for gangrene, about thirty hours after he had sus-

tained a very extensive lacerated wound of the fore-arm with fracture of the bones. He was a clerk in the cotton factory, and when the injury happened he was seen by Messrs Easton and Cunningham, surgeons in Calton, but refused at that time to submit to an operation. The whole fore-arm was involved in the gangrene, and the integuments on the inside of the arm, nearly as high as the axilla, were of a dusky red colour, but not emphysematous. Amputation was performed at the middle of the arm, and the divided muscles and cellular tissue appeared healthy. Not more than two ounces of blood were lost, and only the brachial artery required a ligature. He passed a restless night, and next day there was a profuse discharge of bloody serum from the stump. The gangrene returned, and extended along the cellular texture to the scapula. He died on the 5th day.

In the following case, gangrene of the foot and leg took place after fever, unconnected with external injury.

CASE 14. *Spontaneous gangrene of the left foot and leg; amputation successful.*—C. B. aged 18, admitted March 9th, had a severe attack of fever seven weeks ago, and three weeks after, when convalescent, began to complain of pain in the left foot and leg, which became gangrenous. The toes were hard, black, and shrivelled, and the other affected parts cold, soft, and greenish-coloured. There was an ulcerated line of separation between the dead and living parts rather above the middle of the leg, and extending as deep as the muscles. She slept ill, suffered much pain, was subject to hysterical paroxysms, and her pulse was rapid and feeble.

On the 19th, the disease being completely defined, the parts separating deeply, and her health and strength having improved, amputation below the knee by the double flap was had recourse to. Not more than a table spoonful of blood was lost, and of the three main arteries only the posterior tibial was tied.

On inspecting the limb, the main arteries, between the part where amputation was performed, and the termination of the gangrene were obliterated. The fever, from the debility which it produced, seemed to act as a predisposing cause, while the exciting cause was to be referred to the incautious application for several days, at the period of convalescence, of bottles filled with hot water to the feet and legs, which were unusually cold. The parts were thus over-stimulated, and the main arterial branches became inflamed and obliterated. During the progress of the gangrene, the lower half of the femoral artery was felt enlarged, thickened, and without pulsation, as was also the popliteal; circumstances which, taken in connection with the state of the arteries in the stump, distinctly showed that *arteritis* existed, and that this, by producing thickening of the coats and obliteration of the cavities

of the vessels, had led to death of the parts, which they were destined to supply with blood.

III. Injuries of the Head.—Several cases of wounds of the head were admitted, and in one of these about two-thirds of the scalp were torn off by machinery. I observed in this case, as in others where the injury was similar, that the torn extremities of the nerves of the scalp became the seat and source of severe and intractable pain, which was readily excited by the slightest touch, and sometimes extended to the face, and resembled *tic douloureux* in its most aggravated form. Occasionally these pains entirely disappeared after the wound was cicatrized; but in other cases, they were for a long time after productive of great suffering.

Of the cases of fracture of the cranium, I shall confine myself to the three following.

Case 15. *Extensive fracture of the cranium, depression successfully removed; abscess in the right hemisphere of the brain.* —A. M. aged 16, sailor, admitted September 8th, on account of an injury of the head, which he received nine hours previously by a fall into the hold of a vessel, from a height of 12 feet. He vomited repeatedly, and was with difficulty roused. Above the right eyebrow was a small wound, through which bone was felt, but no fracture. The right side of the head was swollen and fluctuating from extravasation of blood under the scalp, and the pulse was 60, and laborious. He had also sustained a simple fracture of the left radius. He was freely bled, leeched, and purged, and an iced cap was applied to the head.

On the 9th, the symptoms of compression had increased; the right pupil was dilated and insensible; the respiration hurried but not stertorous; and as the swelling of the scalp had diminished, the feeling of depressed bone was more distinct. I made a two inch incision through the scalp near the centre of the right parietal bone, and a quantity of blood, with several small portions of brain, escaped. A fracture was discovered passing across the upper part of the head, through the sagittal suture, and forwards horizontally to the right orbit, the one side of the bone being driven firmly under the other. As this depression could account for the symptoms, the incision was enlarged and made crucial, and the crown of the trephine applied so as to remove a circular portion of the skull, which was unusually thick for so young a subject. The levator was introduced, and the depressed bone elevated, and then the direction and extent of the fractures were well seen, as was also a small lacerated opening in the *dura mater* He was evidently sensible to the pain of the operation, but it never appeared to rouse him to any thing like mental consciousness.

For the first nine days the most active antiphlogistic measures were employed, and he was mercurialized. From the 20th to the 25th, after an abscess had formed in the course of the fracture near the frontal eminence, had been punctured, the symptoms of compression became again more distinct, accompanied with occasional rigors. Repeated blisters to the head and neck had a good effect; the stupor entirely disappeared, and he became quite sensible and alert. He was dismissed apparently well on the 3d of January.

On the 1st of February, however, he was re-admitted. An abscess, preceded by severe headach, had been formed about the middle of the right parietal bone, over the site of the fracture. On examining the opening purulent matter was found to proceed from within the cranium. A probe was passed through the fissure, and by its own weight it descended four inches perpendicularly through the right hemisphere of the brain, until its point rested upon an elastic substance, apparently the tentorium.

The discharge from this opening still continues, and amounts to about half an ounce in the twenty-four hours. No loose or diseased piece bone of can be detected. He has had two or three epileptic attacks, but none for several weeks, since a seton was inserted in his neck. He is in robust health, and his intellect is unimpaired. He was detained in the Infirmary till the beginning of August last, eleven months from the time of the accident, that he might be carefully watched.

The youth of this patient was the most favourable point in the case; but this was more than counterbalanced by the great extent of the injury, and the completely ossified state of the cranium. The application of the trephine enabled the depressed bone to be elevated, and the brain freed from injurious pressure. The relief obtained was decided, but not altogether permanent. An abscess formed apparently in the right hemisphere of the brain, and without any very marked sensorial or general disturbance, the matter has continued for months to be discharged through a small opening in the cranium. Were this opening to close prematurely, the matter would accumulate, and symptoms of compression show themselves, in which circumstances it might be necessary again to apply the trephine.

Case 16. *Compound fracture of the cranium; cure.*—J. C. aged 24, labourer, admitted 1st November, at 9 A. M. The previous night when attending a wake, he got intoxicated, and was struck with a brick on the forehead, and rendered insensible. He lay in the Police-Office for several hours, and when admitted into the Infirmary he was in a state of partial stupor, and on being roused he talked incoherently. The pupils were dilated and sluggish; the pulse 60, and intermittent; the skin cold; and the features collapsed. There was a wound of the

left eyebrow, about 2½ inches in length, through which the finger detected a fracture above the superciliary ridge, with considerable depression and comminution of the bone. He was repeatedly bled, and rigidly subjected to the other antiphlogistic means. For the first four days the symptoms of compression continued, but afterwards they gradually subsided, and he was dismissed on the 23d, with the wound closed.

In small comminuted and partially depressed fractures of the cranium, when the sensorial functions are little, if at all disturbed, the majority of the surgeons of the present day decline to interfere by operation. Since the last observations I made on this subject,* I have met with two cases in which the early removal by the trephine of the fractured and depressed bone, while the patients were perfectly sensible, was entirely successful, and, on the other hand, I have seen a greater number of cases where the neglect to act upon this as a preventive of bad consequences has led to the most unfavourable results. In the above case, this precautionary practice was not adopted, because the fracture was situated over the frontal sinus, where the two tables of bone are more or less separated, and after minute examination, I was led to believe that the inner table was entire. Had both been fractured, I would have expected, what I have often seen on close inspection, a pulsatory motion of the fluid blood in the chink of the fracture.

Case 17. *Compound fracture of the cranium and penetrating wound of the brain; death.*—J. M. aged 57, hawker, admitted March 20th, was struck about two hours previously by his son with a poker, the bowl end of which passed between the left eye and roof of the orbit, penetrating to a depth of two inches. He walked into an adjoining house not even stunned by the blow, with the poker sticking in his forehead, in order to get a neighbour to assist him in extracting it. He walked to the Police-office, and afterwards to the Infirmary, when I saw him on his admission. He was perfectly sensible, but complained of severe pain in the wound. The finger passed through the roof of the orbit, which was comminuted, into the substance of the brain, portions of which had escaped. A semilunar notch of the superciliary ridge was driven off, and being loose it was removed with several detached spiculæ, from the orbit, and from the wound in the brain. The pupils were natural; the pulse 96 and full. Blood-letting was performed to the extent of two pounds; he was smartly purged; and the head was shaved and cold applied.

21st. Was quiet, but had no sleep during last night. Complains of acute pain in the forehead near the wound. The right eye is suffused and intolerant of light, and the pupil contracted. The

* Clinical Reports, p. 281.

left eye is closed by swelling and ecchymosis; pulse 98, full; skin hot.—*St. rept. Vs. ad* lb. iss.; *hirudines* xxx. *fronti; Lotio frigid. capiti. Utat. Solut. Tart. Ant. ad nauseam.*

22d. Passed a very restless night, almost constantly delirious. Since morning has been partially comatose, but can be roused. A few drops of purulent matter and small portions of brain escaped on removing the dressings. The pupils were sensible, but dilated; the countenance was sunk; the pulse 108, soft; and respiration rather laborious.—*Rept. hirud.; emplast. vesicator. nuchæ. Sum. Calomel.* gr. iij. *3ta q. q. hor. Omitt. Solut. Tart. Ant.*

Died on the following morning at six,—the coma having increased rapidly, but without rigors or convulsions.

On inspection, the surface of the brain was highly vascular. Two drachms of bloody purulent matter were found under the *dura mater* at the injured part; and over the entire left and the anterior half of the right hemispheres, purulent matter and lymph were seen between the arachnoid membrane and *pia mater*, and in some places between the latter membrane and the brain. The wound in the anterior lobe admitted the finger, and was nearly two inches deep; the opening was ragged, and the surrounding portion of brain was softened and mixed with purulent matter and blood.

In another case admitted on the 25th January, the frontal bone was fractured immediately above the right superciliary ridge by a piece of iron, which broke off while the man was working at a grinding-machine. The loose fragments of bone were extracted. The *dura mater* was not wounded, but, as was afterwards ascertained, the brain was lacerated. The coma, which immediately followed the injury, gradually increased, and on the 30th he could not be roused. The *dura mater* projected through the opening, and obscure fluctuation was felt. A minute puncture was cautiously made into it, and about two drachms of dark-coloured purulent matter mixed with brain were discharged. Before he died on the 1st of February he had frequent rigors and violent convulsions.

On inspection a tablespoonful of purulent fluid was found under the *dura mater* close to the wound, and a still larger quantity diffused over the upper and outer surface of the right hemisphere, between the arachnoid and *pia mater*, and next to the brain. There was a suppurating cavity in the brain the size of a walnut.

Of the two last cases the first was, at the time, the most formidable. The *dura mater* and brain were wounded; but the immediate effects of the injury were slight. In a very short time, however, inflammation supervened, followed by rapid and diffuse suppuration without rigors. In the second, the injury was

less severe, but from the outset it was attended by more urgent symptoms, which advanced slowly, and ended in extensive suppuration, accompanied with the usual constitutional symptoms. Both of them show that the purulent formation is not always confined to the vicinity of the injury, but is often diffused over an entire hemisphere, and that, therefore, the employment of the trephine for its evacuation must often fail.

IV. Abscess of the tibia.—The first time I saw a well-marked case of this disease was in the Infirmary in the year 1826, during my first attendance. The formation of purulent matter in the cancellated texture of the bone proceeded so rapidly as to entitle it to be called an acute abscess.

Case 18. *Acute abscess of the tibia; cure.*—J. G. aged 34, sailor, admitted on the 6th of June. Five years previously he was treated in one of the naval hospitals, for secondary syphilis, of which the most painful and troublesome symptom was a node on the front of the right tibia, about its middle. After a protracted confinement he was dismissed cured; there only remaining a considerable but rather defined enlargement of the affected part of the bone. This gave him no uneasiness till two months before admission, when, after a smart blow, the part became inflamed and acutely painful.

The usual local and constitutional treatment for *periostitis* was adopted, and he was mercurialized but without benefit. On the 24th, I made an incision through the inflamed periosteum, which was detached to the extent of a crown-piece, the bone being rough and enlarged, but not distinctly carious or necrosed. No relief followed, and no discharge, except from the integuments, took place. Six days after, on examining the surface of the bone, which was partially exposed, a minute opening was seen, through which a probe was passed into the substance of the bone. It produced excruciating pain, and on its withdrawal a small quantity of purulent matter escaped. I was now satisfied for the first time that the disease was in the cancellated texture, and that it was either a simple abscess, or one complicated with *necrosis*. I therefore made a crucial incision, exposed the affected part of the tibia, and applied the crown of a small trephine to allow the matter a free exit. Having divided and removed the anterior shell, on which new bone was deposited, an irregular cavity, about the size of a walnut, was exposed, filled with brownish purulent matter, but no necrosed bone was visible.

The cavity gradually filled up, and he was dismissed cured about the end of July. He was again admitted for fracture of the clavicle in May 1835, when I found that his leg continued well; and that there remained only a little thickening and irre-

gularity of the integuments and tibia in the site of the former disease.

Of four cases that occurred to me in the Infirmary, the above was the most rapid in its progress. The hard and unyielding parts in which the abscess is formed must obscure and impede the progress of the disease, and cause a considerable time to elapse before it can be distinctly ascertained. The formation of purulent matter in the cancellated texture of the tibia is to be attributed to inflammation of the medullary membrane, with or without a previous affection of the periosteum. It would also appear that scrofula predisposes to an attack; but, from whatever cause it originates, it is always accompanied with an enlargement of the bone, with frequent paroxysms of pain, which the ordinary treatment for *periostitis* fails to relieve, and which may continue for years unsubdued, unless the pent up matter be evacuated. The usual progress of the disease and its characteristic symptoms are well seen in the cases detailed by Sir B. Brodie.*

Case 19. *Chronic abscess of the tibia; cure.*—J. D. aged 11, admitted May 26th 1835. Is of a strumous habit, and has had for several years ulcer in the neck and on the left leg. Five years ago he began to complain of pain in the front of the right tibia, about three inches below the knee. The paroxysms became more and more severe and frequent, and a small defined swelling formed. The usual treatment having failed, I exposed the bone by incision on the 1st of June, and removed the projecting part of it by the trephine. The *cancelli* were exposed, a cavity opened, and about a teaspoonful of purulent matter discharged. The softened cancellated texture was scooped out with a strong knife, and the inflamed medullary membrane, which was exquisitely painful, was touched with the actual cautery. He had an attack of erysipelas, but was dismissed with a sound limb on the 28th of July.

V. Carcinoma.—It would be desirable that the results of operation for this malignant disease were more carefully investigated and more faithfully recorded, than appears to be the case at the present day, that we might be enabled to appreciate with greater accuracy the chances of success from surgical interference. When it affects the mamma, whether involving the whole gland, or in the form of tubercle, it is rarely that an operation proves ultimately successful. For some years past I have made inquiries on this subject regarding my own cases and those of others, and have been led to draw very unfavourable conclusions. I have ascertained the termination of above thirty cases; 14 of which were operated on by myself, and in all with one ex-

* Medico-Chirurgical Transactions, Vol. xviii. p. 230.

ception, the disease returned, in a period of time varying from a few months to about three years. Some of these were exceedingly favourable, the disease being recent, and the adjoining lymphatic glands unaffected; yet it returned in almost every case either in the axilla, near the old cicatrix, in some internal organ, or in one of the long bones, most frequently the femur.

Of late years, it would appear that, in the hands of some surgeons, the knife has frequently succeeded, and there seems to be at the present day rather an increasing confidence in its efficacy, and a disposition to have recourse to it, not simply as a palliative, and in recent cases, but with the hope of a cure, and when the disease is considerably advanced. There are certainly on record a good many cases in which no relapse took place, and we find at the present moment, women alive upon whom the operation was performed years ago. But the question occurs, were these cases of genuine cancer? I have known a good many instances where the mamma was removed for indolent enlargement, deep-seated chronic abscess, and strumous tubercle, which, from ignorance or deception, were represented to be true carcinoma. How could the disease return here when it never existed? These are all recorded as cures, and we cannot wonder that the cure should be permanent. A surgeon in a public hospital may acknowledge his error without any serious injury to his reputation; and if he be candid, he will do so. But, from what I have occasionally observed, this is not always done; and credit is therefore taken for cures which were never performed.

On the 13th of February last, Mary Marshall, aged 32, was admitted into the Infirmary to have a finger amputated for a strumous affection of one of the phalanges. Twelve years previously, when only 20 years of age, her left breast was extirpated for cancer, and after a few months, two carcinomatous tumours were removed from the right breast, the nipple and a portion of the gland being left. The cure, I need hardly say, was permanent.

It may be asked, why operate on such cases, where the chances of ultimate success are so exceedingly small. If the knife cannot eradicate the disease, the patient generally believes that she must die. We are, therefore, sometimes constrained to operate, when our cool judgment tells us that it is hopeless, and then chiefly as a palliative. I must confess, however, that this painful and dangerous procedure, and for effects so partial and uncertain, is rarely justifiable, and I cannot refrain from acknowledging, that my reluctance to have recourse to the knife is daily increasing, even in cases which appear the most favourable for its success.

Case 20. *Carcinoma of the penis; amputation; cure.*—

A. C., aged 52, labourer, admitted on the 16th of June 1835. The *glans penis* was converted into a long irregular ulcerated mass, of a cauliflower appearance, the edges being everted and indurated. It was partially covered with the prepuce, which was in the same state of disease, and the induration extended for two inches along the body of the penis. There was a small fistulous opening below the glans, about an inch from the orifice of the urethra, through which part of the urine was discharged. He complained of sharp lancinating pains in the part, and the discharge was thin and fetid. There were several enlarged, but not very indurated glands in both groins. He had a hydrocele on the left side, with slight enlargement of the testes. The disease was of seven months duration, and commenced on the upper part of the glans in the form of a small vesicle, which was soon succeeded by a tubercle, and as it increased, the prepuce became distended by, and apparently involved in, the growth.

On the 19th, the penis was amputated beyond the induration, and about one-fourth of an inch anterior to the pubis. Three arteries were secured, and the wound covered with oiled lint. All the glans, except the orifice of the urethra, and the whole of the prepuce, were implicated. The outer surface was soft and spongy, but more deeply the parts were hard and fibrous.

On the 20th, he could not void urine until a large clot of blood was removed from the wound, a part of which extended into, and plugged up the urethra. An elastic catheter was introduced, and retained two days, and after this he passed urine without aid or difficulty till the wound was nearly closed, when the orifice of the urethra contracted so as to require the use of bougies. When he was dismissed about the beginning of August, the glands in the groin were hardly to be felt, and he took with him a short silver tube, which he introduced when about to pass his urine, for the purpose of conducting the stream beyond his clothes. He still remains free from the disease, and follows his daily occupation.

Although carcinoma most frequently begins in the glans, yet the prepuce is sometimes its original or primary seat. In none of the cases that I have seen could it be traced to syphilis. It occurred at an advanced period of life, and in those subject to *phimosis*, was often preceded by excoriations from want of cleanliness. When it commences in the prepuce, its progress is less rapid, and before it appears externally in the form of small cauliflower-like excrescences, it has generally involved a considerable portion of the mucous membrane, after which, it so surrounds and conceals the glans, as often to render it impossible, at an advanced stage, to ascertain whether this part is affected or not. When it can be discovered that the glans is sound,

the ablation of the affected parts alone may prove successful, and if there is ground for doubt on the subject, the prepuce should be laid open, that the state of the glans may be explored.

Case 21. *Carcinoma of the prepuce; operation; cure.*—W. H., aged 51, eleven months ago began to complain of itching between prepuce and glans, with discharge of thin matter. This continued for several weeks, when a hard defined swelling was felt, but, having a natural phimosis, the disease could not be exposed. Two months ago, a hard and irregular excrescence began to project, which increased rapidly, occupied the whole of the prepuce, and hid the glans. It was the seat of burning, and sometimes of lancinating pains, and the discharge was thin and bloody. On introducing a probe, it rested upon, and could be made to glide over, a smooth resisting surface believed to be the glans. I divided the prepuce on the left side, but from the great induration of the parts, the glans could not be exposed until a similar division of the opposite side was made; it was only slightly excoriated. The whole of the prepuce being diseased was excised. In about a fortnight the parts were healed.

Case 22. *Carcinoma of the eyelids; extirpation; cure.*—J. M., aged 79, mason, admitted on the 12th of September. The whole of the lower and the outer half of the upper palpebræ of the right eye were involved in a malignant-looking ulcer, the edges of which were everted and indurated, and the surface covered with irregular angry-like granulations. The ulceration extended on the cheek below the infra-orbital foramen, and the induration was felt to dip deeply into the orbit. The conjunctiva of the lower eyelid was thickened, granular, and apparently involved in the disease; the eyeball was sound. Two years previously, there existed a small wart on the centre of the inferior eyelid, which remained stationary till four months ago, when it ulcerated.

On the 23d, the upper and lower lids, with the eyeball, and affected part of the cheek, were extirpated. The external incisions were made with the scalpel, and the detachment of the eyeball, and division of the optic nerve, by means of curved scissors. One artery was tied, and the orbit lightly filled with lint, and supported by a compress and bandage.

For several days after the operation he was feverish, complained of violent headach, frequent vomiting, and want of sleep, which were removed by purgatives, an occasional anodyne, and cold to the head. The orbit was gradually filled by granulations, and cicatrization was going on favourably, without any appearance of the disease returning, when he left the Infirmary on the 19th of October.

This case illustrates the usual history, position, and progress of the disease. It always begins in the eyelids, and if allowed to advance gradually, involves the conjunctiva, loose cellular texture of the orbit, eyeball, &c. The extent of the disease in the eyelids in the above case, and especially the deep induration that existed between the eyeball and floor of the orbit, rendered necessary the extirpation of the eye itself, although not affected. It would have been impossible, without this painful and serious addition to the operation, to have entirely removed the diseased parts. When it is confined to the lower eyelid, it may be removed even with a portion of the upper one, the eyeball being allowed to remain, but it is otherwise when the disease extends more deeply.

Case 23. *Carcinomatous ulcer of the nose; rhinoplasty.* —F. O. aged 74, admitted on the 4th of July 1835. Seven years previously, on the centre of the left *ala* of the nose, there appeared a wart, which became superficially ulcerated, but did not extend till about three years ago. It gradually destroyed the whole of the *ala*; the cartilage exfoliated; and the disease extended to the mesial line of the nose, along the cheek, and over the left nasal bone, to near the inner canthus of the eye. The edges were prominent and indurated, the surface glassy and irritable, the discharge thin and ichorous, and the pain burning and lancinating.

The history, progress, and appearance of the disease, with the advanced age of the patient, led to the belief that it was malignant, and that by the knife only could it be removed. Before this was agreed to, a great variety of local and constitutional remedies were employed, such as the actual and potential cautery, arsenic, muriate of gold, &c.

On the 21st of August, the ulcer was extirpated with a considerable portion of the surrounding integuments. A flap, by measurement, was then formed from the cheek, and turned up over the side of the nose, retaining its attachments to the upper lip by a broad pedicle. It not only fitted the vacant space accurately, but its edges, being thin, I was enabled to bring it and the integuments of the nose into smooth and accurate apposition. It was retained in this position by a number of small pins, and the wound of the cheek closed by sutures. The parts were covered with a pledget of lint dipped in tepid water.

On the 25th, the pins and sutures were removed, and complete adhesion found to have taken place. A small tent was introduced into the nostril; and it became necessary to touch the nasal surface of the flap, from time to time, with caustic, to keep down the granulations. It ultimately cicatrized, leaving an opening into the nose nearly as free as on the opposite side.

He was dismissed on the 23d of September. The deformity was trifling, and depended on a tumid and œdematous state of the flap. When I saw him last this had entirely disappeared; nor was there any appearance of a return of the disease.

When the nose has been partly or entirely destroyed by lupoid, carcinomatous, or syphilitic ulceration, it has always been deemed necessary that the disease should be not only arrested, but the parts completely cicatrized before we attempt to remedy the deformity by the rhinoplastic operation. In syphilitic affections the propriety of this procedure cannot be questioned; but in carcinomatous ulceration, when the knife is required to arrest the progress of the disease, I cannot see the necessity, after cutting off the affected parts, of delaying the restorative operation, until cicatrization has taken place. We not only protract the cure, but we subject the patient to much additional suffering. If the disease has been completely extirpated, the chances of its returning are slight, because, in the majority of cases, it is of a local character; and I therefore cannot see why a flap of sound integuments should not be at once attached to the part. On the contrary, it is possible that the immediate apposition of sound integuments would be followed by adhesion, and by a more active state of the circulation, which, instead of increasing the tendency to a reproduction of the disease, would, by transfusing new vigour into the parts, prove more successful in warding it off, than if the excised surface were exposed to the tedious process of granulation and cicatrization.

VI.—Medullary Sarcoma is not more manageable by surgical means than carcinoma. In many cases it is even more rapid and destructive in its progress than the latter affection, and when its extirpation has been attempted, a shorter period generally elapses before it again shows itself in the vicinity of its original seat, or in some internal organ.

Case 24. *Medullary tumour of the mamma; operation; return of the disease.*—Mrs M. aged 40, a stout healthy woman, who had borne several children, was admitted on the 23d November, on account of a tumour of the right mamma, which was first observed twenty months before, and was then not larger than a pea. It was intimately attached to the upper part of the mamma, but did not appear to involve the whole gland. It was hard at the base, but nodulated and elastic on the surface, and was traversed by numerous enlarged veins; and it measured 7½ inches in the long diameter, and 16 in circumference. It was growing very rapidly, and producing attacks of lancinating pain. No diseased glands could be detected in the axilla.

On the 26th, the tumour and mamma were extirpated with

all the superjacent skin, and a quantity of the surrounding adipose substance.

The medullary character of the disease was well marked. The wound closed, and she was dismissed apparently well in about three or four weeks. In less than two months a tumour began to form in the axilla, which is growing rapidly, and the case is now hopeless.

The most rapid and extensive case of fungus of the breast that I recollect to have seen, was sent to the Infirmary in February last, by Dr M'Fadzean of Ardrossan, and was under my care for several weeks, merely for palliative treatment. The disease was only of seven months duration, and it had increased so rapidly, that on the admission of the patient, it was about the size of an adult's head, and covered with a fungoid ulcer, ten inches in diameter. Attempts were made to destroy alternate portions of the tumour by the chloride of zinc paste; but the impression produced upon it was very slight. I observed in this case, as in several others, that there was a greater tendency to the development of the same malignant disease in some of the internal organs, than in the neighbouring glands.

Case 25. *Medullary tumour in the left labium pudendi; operation.*—Mrs S. aged 22, admitted January 30th. There was an oval-shaped tumour larger than an orange in the left *labium*, extending from near the pubis to the fourchette. It had a soft, elastic, and irregular feel, and was closely attached to the mucous membrane of the *labium*, at the lower part of which there was a small fungoid growth, about the size of a shilling, in a state of ulceration, which had followed an exploratory puncture, made into a softened point by a surgeon. It began two years previously, but did not increase rapidly till a short time before her delivery, which took place three weeks previous to her admission.

On the 4th of February, as the disease appeared to be confined to the *labium*, it was extirpated with the affected part of the mucous membrane. The tumour was of a mixed character, but in its softened points the medullary structure and appearance were distinctly marked. She was dismissed with the wound healed on the 10th of March; but I doubt much if the cure will be permanent. Her health was much impaired. The pulse was accelerated, and the complexion sallow, which, however, might partly depend on the recent confinement and the subsequent operation.

Case 26. *Medullary sarcoma of the left testis; extirpation.*—H. C. aged 34, porter, admitted on the 20th of November. The left testicle was four times the natural size, of a pyriform shape, and of various degree of consistence, being in some parts hard and unyielding, and in the others soft and elastic. The

integuments were sound, but the subcutaneous veins were greatly enlarged and arborescent. The cord was natural. About two years ago, after a blow, a small tumour was observed, apparently in the body of the *testis*.

Mercurial frictions with iodine were employed, and the mouth affected, but without benefit. I made a puncture with a grooved needle, into an elastic point, and only a few drops of blood escaped. On the 7th December castration was performed, and on dividing the cord, which was thickened, but not indurated, a soft gelatinous mass of a dark colour protruded, and was carefully removed. He was dismissed in due time, and as yet there has not been any return of the disease.

When the testicle was examined a very singular appearance was presented. The *tunica vaginalis* was greatly thickened, and contained about three ounces of a dark brown fluid, not unlike coffee-grounds, mixed with small coagula, and softened portions of matter like brain, and on its inner surface there were several small vascular growths of a fungoid character, the rest of this tunic being of a dirty brown or buff-colour, like half-tanned leather, probably from the coloured fluid it contained. The testicle was nearly destroyed; only a small fungoid point remaining, similar to those on the *tunica vaginalis*.

I believe that the disease was *fungus hæmatodes*, and although I have never seen any thing exactly similar, yet I think the peculiarities it exhibited are capable of being satisfactorily explained. It evidently commenced in the substance of the testicle, in the form of a soft defined tumour, which enlarged gradually, and must have penetrated through the *tunica albuginea*. The softened and diseased mass would thus come to protrude into the cavity of the *tunica vaginalis*, and a more rapid swelling take place, and ultimately blood would be effused, and become mixed with the *debris* of the fungus. We are aware that, in ordinary enlargement of the testicle, both benign and malignant, the albuginea yields slowly to the growth of the parts which it covers, without being ruptured, but we also know that it may be lacerated by external injury, and that in abscess it becomes perforated, and gives rise to the disease called granular fungus.

VII.—Fungus of the Antrum.—This cavity may be the seat of simple or malignant growths. These are most frequently met with in females, at or above the middle period of life. There is reason to believe that they generally originate in the mucous membrane, and that during their progress the bone becomes affected. When the disease commences in, and is confined to, the anterior wall of the antrum, the external tumour is sooner apparent, and an early operation is likely to be more successful than when it springs from the posterior part of the ca-

vity. Yet it must be acknowledged, that, under the most favourable circumstances, this destructive disease is seldom permanently eradicated by the usual method of partial operation.

Case 27. *Malignant fungus of the right antrum — operation unsuccessful.*—Mrs P., aged 47, was admitted on 15th August from the Fever Hospital, where she had been acting as a nurse. The anterior wall of the right *antrum* projected in the form of a conical and defined tumour, which was soft and elastic, and exceedingly painful on pressure. There was a constant discharge of fetid purulent matter from the right nostril, and from the socket of the second molar tooth, which had been extracted. A probe was passed into the antrum, and a soft body felt in the anterior part of the cavity. The lower margin of the orbit, and the upper edge of the nasal bone were elevated and painful. The palate was sound. The disease was of seven months duration; but no swelling took place until several weeks after.

On the 21st, an incision was made into the cheek, over the most prominent part of the tumour, and the flaps dissected back. The tumour was of a soft fungous character, and bled profusely. It occupied the anterior wall of the antrum, which was absorbed, and when it was removed by the knife, the back part of the cavity contained a quantity of purulent fluid, and the mucous membrane was tumid and soft, but not fungoid. The remains of the growth were destroyed, the diseased edges of the bone pared off, and the actual cautery freely applied. The antrum was lightly filled with lint, and the external wound closed by sutures and pins.

On the 25th, the wound was united, and the discharge from the antrum moderate. On the 12th of September, she had a feverish attack, followed by erysipelas of the face and ulceration of the cicatrix. The discharge became profuse and fetid, and the cavity, into which a variety of injections were thrown, was frequently filled with a thick curdy matter of a slate-colour, which had to be removed by the probe through an opening which was preserved between the cheek and alveolar process. The unfavourable appearances gradually increased; the cheek became hard, swollen, and purple-coloured; a number of angry-looking tubercles formed close to the cicatrix, and extended to the angle of the jaw, with such induration of the soft parts as to prevent the teeth from being separated. For a considerable time the reproduction of the disease seemed confined to the cheek, the bottom of the antrum was seen, and the lining membrane did not exhibit, for about three months, a more unhealthy appearance than at the time of the operation. No distinct tumour was formed; but it was evident that the disease was penetrating

deeply. The eye began to project; the lower eyelid became œdematous; the pupil was dilated and sluggish, and vision was much impaired. About three weeks before her death, which took place on the 8th of March 1836, about six months and a-half from the time of the operation, she became comatose, and, apparently from destruction of the suborbital parts by ulceration, the eye again fell back into the orbit.

On inspection no distinct tumour was visible. The walls of the antrum, the floor of the orbit, the palatine plate of the maxillary, nearly the whole of the malar, all the spongy, and part of the ethmoid and right nasal bones were destroyed, so as to form a large irregular cavity, of which the right nostril formed a part, extending back to the sphenoidal sinuses, and lined with fetid matter, and shreds of sloughy membrane.

The recent origin, and limited extent of the disease in this case, rendered it extremely favourable for the success of the old operation; yet, although this was done carefully, and apparently completely, and the actual cautery freely applied, it failed in even arresting its progress. Believing it to be malignant, I did not expect to effect a cure. On the contrary, the want of success which I had formerly experienced, as well as seen in the practice of others, led me to dread a recurrence of the disease. Nor is such an untoward termination at all to be wondered at. If the cavity of the antrum is partly or entirely filled with a malignant growth, the surrounding bones are soon affected, and unless every diseased point be removed, it cannot fail to return. Is it reasonable to expect that this can be accomplished by the ordinary method of cutting *into* instead of *beyond* the disease, of removing the affected part piece-meal in place of the complete excision of the bone in which it is inclosed? We would never think of adopting such a mode of removing a fungous or carcinomatous mamma, and unless the same principle be more generally acted upon in the treatment of fungus of the antrum, we must often fail in eradicating the disease.

It might at first sight be supposed that the disease was not malignant, because there was, both before and at the time of the operation, a discharge of puriform matter from the antrum. This merely showed that the whole of the mucous membrane was not implicated, and that, while a malignant growth occupied one portion of the cavity, the lining membrane of another part was capable of secreting purulent matter. This combination is not unfrequent, and in one case which I saw lately, it induced a surgeon to treat a malignant fungus as a simple abscess, until it had become too extensive for operation.

I believe that this malignant disease generally begins in the mucous membrane, although, from the complete occlusion of the

antrum, this is difficult to be demonstrated. In the nose, where the parts can be seen, the accuracy of this opinion is frequently apparent. A woman, 50 years of age, was admitted into the infirmary on 30th December 1835, with *exophthalmos* from the rapid growth of a fungoid tumour in the right orbit. It commenced in the lining membrane of the upper part of the right nostril in the form of a soft polypus, and existed for several weeks before it penetrated the orbit at its anterior angle, or seemed to affect any of the adjoining bones. An old gentleman from Campbelton lately consulted Dr Burns, Mr M'Arthur, and myself, for a disease of the orbit having exactly the same origin; it had also, without occasioning any deformity of the nose or antrum, penetrated the orbit in the same way. Mr Harvey, his surgeon, who accompanied him, had repeatedly removed the polypus from the nose, and that at a time when the disease appeared to be confined to the mucous membrane. About a year ago I attended with my friend Dr Davidson, an old gentleman in whom the disease originated in the mucous membrane of the left *ala nasi*. It extended rapidly to the bones of the face, and before death had penetrated the base of the cranium.

The youth of the patient and success of the operation, show that, in the next case, the disease was not malignant.

Case 28. *Simple fungus of the antrum, cured by operation.*—A. P. aged 18, farm-servant, admitted on the 3d of November. The tumour of the right cheek was about the size of a hen's egg, and occupied the site of the antrum, having existed about seven months. It was soft, somewhat elastic, and very painful on pressure; but had none of the crackling or crepitating feel arising from the yielding and resiliency of a thin membrano-osseous wall, as is usually met with when the antrum is distended by fluid. There was also a small spot in the roof of the mouth, on the same side where the bone was soft and yielded to pressure.

The antrum was evidently the seat of the disease, and altogether the appearances resembled those of a fungus. It was, however, necessary to explore the antrum before the line of treatment was fixed. Accordingly, one of the molar teeth being loose was extracted. It left a large opening into the antrum, through which a probe and director were easily passed, bloody fluid, but no purulent matter escaping. Next day he was examined at a consultation, and it was agreed that the cheek should be laid open, and should the disease prove extensive, excision of the maxillary bone was to be adopted. In consequence of rough handling and probing he had a rigor in the evening, followed by febrile excitement, and increase of pain in the tumour; and on

the 10th, when these had subsided, the operation was had recourse to. Being prepared to excise the entire bone if the extent of the disease should render it necessary, the usual preliminary incisions for this purpose were employed. When the flap was dissected up so as to expose the entire front of the superior maxilla, I sliced off the anterior wall of the antrum, the bone being absorbed and the cavity much enlarged. It contained anteteriorly a quantity of bloody fluid, and purulent matter at the posterior part. The mucous membrane, especially at the upper and lower parts, was tumid, spongy, and granular, and near the floor of the orbit there was a small polypus about the size of a walnut, which was extracted. The hard and prominent portion of the bone near the nose was not only pushed out, but thickened by the hyperostosis, or the deposition of new bone. It being evident that the disease had not advanced so far as we anticipated, I contented myself by removing all the softened bone, and destroying the suspicious parts of the mucous membrane. The wound was closed in the usual manner; perfect adhesion took place; and he was dismissed on the 20th. I saw him several months after, and, except a slight puriform discharge from the antrum behind the cheek, and the enlargement of the bone near the angle of the eye, he was quite well.

In this case, the disease appeared to commence in the mucous membrane; an increased secretion of fluid took place, the bone became affected, and the cavity distended. The fluid was at first muco-sanguineous, as was apparent when the antrum was opened through the alveolar process, but after the febrile attack, consequent on the probing and handling, it became purulent. The extensive incisions of the cheek were certainly unnecessary; but I am satisfied that a permanent cure was more likely to be obtained by opening the antrum and removing the diseased bone and polypus, than by simply puncturing and evacuating the matter.

VIII. Epulis.—This disease is generally met with in people above the middle period of life, oftener in the upper than in the lower jaw, and, so far as I have observed, it occurs more frequently in women than in men. From its being generally malignant, an early and free operation holds out the only chance of cure. The excision of the diseased soft parts, and the subsequent application of the cautery, may succeed at the very outset; but after the alveolar process is affected, a more extensive operation will be required. The mode of its performance will depend on the extent and situation of the tumour. If the adjoining teeth are loose or have dropt out, the alveolar process is always affected, and must be removed. This may be done by a strong curved knife; or after dividing the sound *alveoli* at the

anterior and posterior boundaries of the disease, the affected part may be torn away by a tooth key, or separated with a small saw, or the cutting-pliers. When the tumour is extensive, and seated in the lower jaw, it has been found necessary to remove the whole *ramus* of the bone. The actual or potential cautery should be freely used, and repeated if the parts do not soon assume a healthy appearance.

Case 29. *Epulis, operation, cure.*—R. H. aged 36, labourer, admitted November 16. Four months ago, a small vascular tumour was observed at the root of the second molar tooth of the upper jaw, on the left side; and about a month after, the tooth having become loose, was extracted. The disease increased slowly till three weeks before his admission, when, after an attack of catarrh, it began to spread rapidly, and soon extended from the first molar tooth to the posterior angle of the upper maxillary bone, from which space all the teeth had been extracted. The alveolar process and the soft palate to the mesial line were covered with a large irregular, lobulated, and very vascular growth, which bled freely on being handled, and was the seat of occasional lancinating pains. It pushed out the cheek so as to occasion deformity; and at one or two points the probe detected a softened state of the *alveoli*, but, so far as could be ascertained by the probe and by the application of the stethoscope, it had not extended into the cavity of the antrum. There was a very indurated and enlarged gland deeply seated under the angle of the jaw on the left side.

On the 19th, the diseased parts were removed, although, from the state of his health, the extent of the disease, and the existence of a contaminated gland, the prospect of ultimate success was not encouraging. An incision four inches in length was made through the cheek from the angle of the mouth upwards and outwards. I divided the alveolar process perpendicularly with the cutting-pliers, and excised with a strong curved knife the affected alveolar process and palate, cutting from behind forwards. The bone was softened. The actual cautery was applied very freely, and the external wound closed. It soon became united, and the cavity filled with granulations, but the caustic potash had to be repeatedly and freely applied to a diseased point near the root of the velum. Since he was dismissed I have learned that the mouth remains sound, but that the submaxillary gland is rather increasing.

This disease has been but slightly noticed and imperfectly described by surgical writers. There are two varieties of it to be met with in practice, one simple or benign, and the other malignant. The former is small and defined, being seldom larger than a walnut, of a firm texture, and more or less pedun-

culated. It begins in the gum frequently after abscess of the part, and but rarely affects the bone, and as it increases, which it does very slowly, from being covered with a smooth membrane, it becomes granular on the surface. Its base is seldom large, even when the disease has been of long duration, and the tumour occasionally bleeds a little, but is attended with little or no pain. On its being removed by the knife or ligature, it may be repeatedly reproduced, unless the surface from which it springs be destroyed by the cautery or caustic; and in general the secondary and subsequent growths are more rapid in their formation, and of a softer texture than the original tumour.

The second variety is evidently malignant. It begins in the gum, at the root of one of the teeth, in the form of a small, ill-defined, spongy, and purple-coloured tubercle; it extends rapidly along the soft parts, which become swollen, vascular and lobulated, loosening the teeth, dipping into the alveolar processes, involving the bone and palate, and often giving rise to profuse fetid discharge, and to hemorrhage. It may extend over the entire jaw bone, and among the bones of the face, so as to impede mastication and deglutition, contaminate the absorbent glands, and produce distressing deformity. In some cases the tumour possesses a sarcomatous hardness, and remains so throughout its progress, and in others it is soft and spongy; but in all, as it increases, it becomes more irregular on the surface, more fungoid in appearance, and firmer in texture.

Sir B. Brodie, who has written some excellent practical observations on this disease, is of opinion, that, although malignant, it does not contaminate the absorbent glands like carcinoma or *fungus hæmatodes*.* I have seen more than one case in which, at an advanced stage, the lymphatic glands have become affected, and that to such an extent as to form a very painful addition to the original disease. It is true, however, that such a complication does not always or even frequently occur. But this may depend not so much on an inferior degree of malignity in the morbid growth itself, as upon the greater paucity and inactivity of the absorbent vessels of the gums compared with other and more fleshy parts of the body. But, whatever explanation be offered, the fact cannot be denied, that diseases proved by their rapid and destructive progress, to be the most malignant, may exist in the bones of the face, and in the upper and lower maxillæ, without the glands becoming affected, showing that the absence of glandular disease is no criterion of the nature of the malady going on in the neighbouring parts.

Sir B. Brodie has been led to believe that the disease fre-

* Lancet for Nov. 21, 1835.

quently commences in the alveolar process, and that the affection of the gum is of secondary occurrence. This point can only be satisfactorily determined by early and minute examination. When such favourable opportunities presented themselves to me I have uniformly found, that the gum was first affected, and that softening and absorption of the bone were secondary. The disease, no doubt, from its rapid progress, and from the paucity of soft parts in which it is seated, soon implicates the bone, and penetrates the alveolar processes, as we find on examining the parts at a more advanced period. But neither this circumstance, nor the usual course of the disease, nor the results of operations early undertaken, afford us ground for believing that the morbid growth originates in the osseous structure.

IX. Excision of the elbow-joint.—The prejudice so long entertained against this operation is now yielding to the daily increasing number of cases in which it has proved successful, not only in removing the disease, but in preserving useful limbs. Although not a difficult, it is certainly a tedious and painful operation. The wound is extensive, and, from the disease of the soft parts generally present, profuse suppuration sometimes ensues. The cure is therefore protracted, and months must elapse before the functions of the arm are restored. In very unfavourable states of the system, some of these objections may perhaps warrant us in preferring amputation; but in cases at all favourable, when the disease is confined to the articulation, and the system is able to bear the shock of the operation, and it may be the subsequent profuse discharges, we are not only warranted, but, I think, imperatively called upon, on account of the remote advantages it holds out, to have recourse to excision.

In children after excision, the parts sooner accommodate themselves to the loss which has been sustained, and the limb thus preserved sooner regains its strength and usefulness than in adults. But even in the latter class of cases the ultimate success of the operation is also undoubted. At one time I entertained some doubts on this point. But these have been since removed by an examination of some of the successful cases of my friend Professor Syme, as well as from the result of a case which I operated on five years ago*. In this case two inches of the *humerus*, two inches and a quarter of the *ulna*, and one inch of the *radius* were removed. When the patient left the Infirmary about six months after the operation, which was performed in September 1831, the fore-arm was nearly useless. I did not see her again till July 1836, when she was re-admitted for a

* Clinical Reports, p. 27.

different disease. I was both pleased and surprised at the very marked improvement that had taken place. The arm is but little shortened, and the motions of the elbow are nearly perfect. The power of flexion and extension is complete. She can perform pronation and supination partially, can lift a heavy body with great ease, and preserves entire all the movements of the wrist and fingers. Among a number of medical men who have recently examined this joint, and have been pleased with its appearance, and with the utility of the limb, I may mention that excellent surgeon, Mr Crosse of Norwich.

Case 30. *Caries of the elbow-joint; excision; cure.* J. C. aged 4½, admitted on the 3d of June 1835. Sixteen months previously he fell and injured his left elbow. This was followed several weeks after by a large abscess over the posterior part of the joint. Since that time repeated suppurations had occurred; the joint was puffy, elastic, painful, and semi-flexed; the swelling extended three inches along the posterior surface of the *radius* and *ulna;* there were several fistulous openings at the outer edge of the *olecranon* and on the fore-arm, nearly all of them leading to diseased bone. His health was greatly impaired, and his constitution strumous.

On the 11th of June, the joint was excised in the usual manner. The synovial membrane was greatly thickened and pulpy. The humerus was divided about an inch above its posterior fossa, and the *olecranon* removed with a metacarpal saw. I found it necessary, on account of the extent of the *caries*, to divide the ulna a second time an inch below the coronoid process. Four arteries required ligatures. Sutures, straps, and bandages were the dressings employed, and the arm was put up in a semi-flexed position. The excised portions of bone were completely carious.

For several days he was so free from pain and fever that he could not be kept in bed. The lateral incisions united, but the transverse one could not be kept in apposition. On the 4th and 11th of July, he had two attacks of erysipelas, commencing at the elbow, and extending to the shoulder and hand, followed by several abscesses near the elbow.

On the 10th of September, when he was dismissed, the wound was closed, but there still existed several small strumous ulcers on the fore-arm, unconnected with diseased bone. As his general health improved these gradually closed, and about a month ago, when I saw him last, he had nearly regained the complete use of this limb.

The extent of the disease in the *ulna*, as indicated by the puffy swelling of the soft parts, did not render this case a very favourable one for excision. A greater portion of this bone than usual required to be removed, and it is possible that the softened

and unsound appearance of the remaining divided end had some influence in inducing and maintaining the repeated and tedious suppurations that ensued. In all such cases it is of importance to procure an early union of the incised soft parts. When these have been long the seat of disease, they become so indurated as in some cases to render difficult their accurate approximation. This disadvantage I think may generally be overcome by dressing and keeping the limb in the straight position.

X. Aneurism.—During the last twelve months I have met with three cases of that comparatively rare disease,—aneurismal dilatation of the arteries of the face and scalp. I shall reserve what I have to say on this subject till a future occasion, and proceed to consider a case of false aneurism, and several of aneurism by anastomosis.

Case 31. *Aneurism of the Brachial Artery, cured by operation.*—S. E. aged 21, iron-moulder, admitted on the 29th of June 1835. Six weeks previously he was bled in the median basilic vein of the left arm, and the brachial artery accidentally punctured. Much difficulty was experienced in stopping the flow of blood, which recurred frequently during the first twenty-four hours, after which the wound closed. On removing the pressure the tumour was not larger than a walnut, but it began to increase rapidly, and soon attained the size of a large lemon. It was tolerably defined, and of a conical shape, pulsated violently, and measured four inches transversely, and three perpendicularly. It could be somewhat diminished by pressure, but on this being removed, it immediately filled with a whizzing noise. The integuments were inflamed, and he complained of pain in the tumour and along the course of the median nerve.

On the 2d of July, the brachial artery was tied about three inches above the inner condyle, in consequence of the aneurismal sac extending high up along the inside of the arm. The incision through the common integuments exposed a large nerve, apparently a branch of the external cutaneous, which adhered intimately to the fascia in the line of the artery. When the sheath was opened the median nerve was found in its natural position. The artery was tied with a single ligature, and the wound brought together.

On the 5th the pulse was distinctly felt at the wrist, and the tumour was diminishing slowly. The wound adhered; but the ligature did not separate till the 5th of August, thirty-four days from the operation.

I have lately examined two cases of false or varicose aneurism at the bend of the arm. In one, the communication between the artery and vein is direct, and in the other, a very small but distinct sac intervenes. In both the disease has existed for more

than ten years. The tumours are small, have shown no tendency to increase, and produce little or no inconvenience. The usual thrilling sensation may be felt and heard not only at the affected part, but in some of the larger superficial veins of the fore-arm.

I have met with several cases of aneurism by anastomosis, in which the size of the tumours and activity of the vessels rendered it so difficult to eradicate the disease by ligatures, as sometimes to require, even when all the affected parts appeared to be included, a second or a third operation. When the tumour extends deep, and partakes more of the arterial than venous character, its cure by operation is occasionally difficult and uncertain. In a case which I saw lately with Dr Torbett of Paisley, the tumour extended from near the angle of the mouth to the inner canthus of the eye, and almost involved the entire thickness of the cheek. Several long needles were passed in various directions, their points being entered beyond the external limits of the disease, and carried so deeply as to get behind it. These were allowed to remain, and a firm ligature tied behind them, so as to include the tumour. A second operation, equally extensive and severe, was soon required, the first having been unsuccessful. Both were so carefully, and, judging from the appearance at the time, so effectually done by Dr Torbett, that no chance of failure could have been reasonably anticipated. This want of success must depend on the exclusion of a part of the diseased mass. But even when this does happen, its reproduction does not always take place, the enlarged vessels becoming obliterated beyond the point to which the ligature is applied.

Notwithstanding of the occasional failure of the ligature, I still prefer this mode of treatment to the knife or cautery. Even when the tumour is large, and a considerable portion of integument is included, the application of a ligature is not generally productive of much pain, and the parts being closely drawn together, the subsequent cicatrix is not very extensive, nor is the deformity very perceptible. It is sometimes necessary, effectually to get behind the tumour, to use curved needles or pins instead of straight ones. These were very successfully employed in a case which I saw lately with my friend Dr Young; the tumour was on the face, and filled up the hollow under the prominence of the malar bone.

Case 32. *Aneurism by anastomosis; ligature.*—A child, 8 months old, had a tumour nearly as large as half an orange over the anterior fontanelle, which possessed the characters of aneurism by anastomosis, and seemed to involve the whole thickness of the sac. These different operations by ligature, in the manner already described, were successfully performed, care being taken to pass the pins as deeply under the tumour

as possible, without wounding the *dura mater*. After the sloughs had separated, caustic potash and the actual cautery were freely applied to any point that had a suspicious, livid, or vascular appearance. Nevertheless, the disease is not yet completely removed. The centre is occupied by a firm unyielding cicatrix, but around the base there is an elevated ring of the old vascular disease.

In this case it would have been better to have delayed the operation until the fontanelle had closed, when all the diseased parts could have been more certainly included without the risk of injuring the brain.

Case 33. *Aneurism by anastomosis; operation.*—J. N., aged 3 years, had at birth a small anastomosing aneurism over the centre of the left parietal bone, which had increased rapidly during the last six months. It was of an oblong shape, measured three inches and a-half in the long, and about two in the short diameter, projected considerably beyond the level of the surrounding scalp, was purple-coloured, somewhat tense, and the seat of a distinct thrilling pulsation. Three enlarged vessels were observed to enter the tumour, two anteriorly from the temporal, and one behind from the occipital.

The more effectually to cut off the supply of blood to this tumour, I was induced to secure these three arteries by ligature, immediately after which the tumour was tied in the usual manner. The cure was complete.

The following case shows the propriety of the distinction between congenital, venous, and arterial tumours, both as regards their character and progress.

Case 34. *Congenital venous tumour of the eyebrow, cured by extirpation.*—M. G., aged 18, servant, admitted March 26th. Situated above the external canthus of the left eye, and extending from the middle of the superciliary ridge to the zygoma, and along the temple for nearly 3 inches, was a soft, spongy, and somewhat pendulous tumour, of a livid colour, and mottled appearance. It did not pulsate, nor could any large vessels be traced to it; it could, however, be diminished nearly one-half by pressure, and on this being removed, it regained its original volume very slowly. It covered the outer half of the upper eyelid, and on everting the lid, its conjunctival lining was pushed forward by a process of the tumour which passed back towards the orbit. The disease was congenital, and remained stationary for many years; but latterly, in consequence of its extending towards the eye, the patient had become anxious for its removal.

On the 31st, the tumour and its investing integuments were removed by the knife. It was found impossible, without extir-

pating a part of the eyelid, to remove all the disease. A small portion was therefore allowed to remain, but to cause it to inflame and become consolidated, it was freely broken down. Besides, I was of opinion that this part being supplied with blood from the temple, its growth would be arrested by the removal of the rest of the tumour. Even before her dismissal on the 18th of May, it was evident that the disease was removed, and since that time, there has been no appearance of its reproduction.

XI. HERNIA.—Cases of this disease are rarely admitted into the Infirmary. Only one was operated on during the period embraced by this report. I have, however, met with a good many in private practice. Of 28 operations which I have performed, 20 were for crural, and 8 for inguinal hernia. Of these, 16 contained intestine, 5 omentum, and 7 both intestine and omentum. 18 occurred in females, and 10 in males, and only 3 of the cases proved fatal. This success is to be attributed in a great measure to the cautious use of the taxis, and the early performance of the operation.

CASE 35. *Strangulated crural hernia, operation, cure.*—J. F., aged 35, servant, was admitted on the 6th of June 1835, at half-past 9 A. M., having been subject for several years to a reducible crural hernia in both sides. About 3 o'clock in the afternoon of the day previous to her admission, on exertion the tumour appeared in the left groin, and its appearance was soon followed by acute pain in the part, extending to the abdomen. She was bled, and the taxis employed, but without benefit. The tumour, which was evidently intestinal, was about the size of a pigeon's egg, occupied the crural space, and was partly turned up over the edge of Poupart's ligament. It was acutely painful when handled, as was also the abdomen, which was tympanitic. The bowels were constipated; the pulse 90 and irritated; the countenance anxious; she had frequent vomiting and hiccup.

Having failed in a moderate use of the taxis, and the symptoms being urgent, I proceeded to the operation. There was an unusual quantity of adipose substance between the layers of fascia, and immediately exterior to the sac, across which passed a large artery, apparently from the external pudic, and, by the constriction it produced over the tumour, gave it the appearance of an hour-glass. When this vessel was tied, and the sac opened, a small knuckle of dark-coloured intestine was exposed. The stricture was divided, and the gut was replaced.

She had no bad symptoms, and was dismissed on the 29th.

I was lately called to another case, in which the shape of the tumour was affected by the passage of an artery across it. I saw this patient, a woman, 65 years of age, with Dr Paterson of

Argyle Street, in April 1835. The hernia was crural, and on the left side, and the tumour appeared as if divided obliquely downwards and outwards into two unequal parts, of which the inferior was the largest. On proceeding with the operation, I found that this was produced by a vessel the size of a crow-quill, stretching tightly across the tumour. It was divided, and, as no bleeding took place from it, it was secured, but in about three hours, violent hemorrhage ensued, and a ligature had to be applied.

It sometimes happens, although rarely, that a hernia becomes strangulated during utero-gestation, a combination which is apt to militate against the success of an operation. The following case occurred in my private practice.

Case 36. *Strangulated crural hernia during pregnancy; operation successful.*—Mrs J. aged 43, had laboured for twelve years under a reducible crural hernia on the left side, for which she wore a truss, except during the last three or four months of her pregnancies, when the tumour did not trouble her. On the 14th January 1836, when in the eighth month of her seventh pregnancy, it protruded and became strangulated. The taxis failed, and the symptoms being urgent, I performed the operation nineteen hours after the occurrence of strangulation.

Nothing unusual took place during the cure, except great irritability of the stomach, which continued for the first three days, even after the bowels were freely opened; it was ultimately allayed by small doses of prussic acid. The wound healed, and, without any other unfavourable occurrence, she advanced to the full period of gestation, and was safely delivered.

XII. Lithotomy.—This operation I performed only three times during my late attendance; and two of these occurred on the same day. The results were favourable, as usually happens when children are the subjects. * The only case I shall allude to was one of great difficulty, the stone being very large and encysted.

Case 38. *Large and encysted calculus vesicæ; operation successful.*—R. D., aged 12, admitted February 21st. When only 9 months old, he was sounded, and a stone detected. Since that time, the urgency of the symptoms has varied. At first, the pain was more acute, and the stream of urine was often interrupted; but for the last three years, no interruption has taken

* To show the very trifling inconvenience which this operation on children sometimes produces, I may state, that, on the 16th of this month, (September) I removed, by the lateral operation, a stone the size of a walnut, from a child two years and a half old. Except the urine that escaped during the operation, not another drop passed by the wound. In the evening he could not be kept in bed, and next day, at my visit, I found him on the street, running about with the neighbouring children. He is now quite well.

place, and the pain has been felt, not at the orifice of the urethra, but in the hypogastrium. By the concave side of the sound I recognized above, and to the right side of the pubes, the presence of a large stone, which could not be made to change its position.

I performed the lateral operation on the 25th. A large and globular-shaped portion of the calculus, about half an inch in length, projected into the cavity of the bladder, while the remainder, including its greatest diameter, was firmly grasped in a cyst. The projecting part was repeatedly seized with the forceps, and portions of it broken off; but I could not dislodge the stone. A pair of bullet forceps was then introduced, and by a slow wriggling motion, pushed between the calculus and the cyst; their blades opened to dilate the parts, and the stone grasped, and partially turned, but not extracted. The dilatation, and the removal of layers of the calculus enabled me at last to pass my finger into the cyst, along which I guided a scoop, got it behind the stone, and brought it down to the external wound; I then pushed back the cyst from the stone with my fingers, and extracted it. It weighed, with the fragments, more than four ounces. The cyst appeared to be larger than the cavity of the bladder itself.

He had twice a threatening of *peritonitis*, the symptoms of which were on each occasion checked by the hip-bath, leeches, &c. The wound closed slowly, and he was dismissed in excellent health on the 16th of April.

XIII. Lumbar Abscess.—Of several cases under treatment, the following is the only one in which a cure was accomplished; and it is chiefly curious on account of the extent of the abscess, and the immense quantity of matter discharged from it. The treatment recommended by Abernethy was adopted; but perseverance in it became impracticable, as the opening became fistulous.

Case 38. *Lumbar abscess; above 400 ounces of purulent matter discharged; Cure.*—R. C., aged 26, coachman, admitted August 25th. Below Poupart's ligament, on the left side, and extending down to the middle of the thigh, and round to near the trochanter, was a large, prominent, and obscurely fluctuating swelling. It evidently extended to the abdomen, but the spine did not appear to be affected. It commenced three months ago, and was preceded by a dull pain in the left iliac and lumbar regions. He had continued to follow his employment, and, although of a strumous habit, his health was but little impaired.

The tumour was first punctured with a grooved needle, the opening enlarged, and about eighteen ounces of purulent matter evacuated. The opening was closed, and pressure applied, but it did not adhere. Every day, and sometimes on alternate days

only, the pressure was removed, and purulent fluid, varying in quantity from sixteen to twenty-four ounces discharged each time. On the 6th of September, after a rigor, the matter became of a brown colour, and was mixed with fœtid air; he had at the same time an attack of erysipelas, which was confined to the affected thigh and hip. After this had subsided, the abscess was found to have extended to the *dorsum* of the *ilium*, when it burst in two different places. The discharge gradually diminished; the hectic symptoms disappeared; his strength and appetite returned; the abscess closed, and he was dismissed on the 5th of October, having lost, by measurement, about 400 ounces of purulent matter. The constitutional treatment was tonic.

XIV. Polypus of the Rectum.—These tumours may grow from any part of the rectum; but in general they are attached near the anus, and in all the cases that I have seen, to the posterior wall of the bowel.

Case 39. *Polypus of the rectum, cured by ligature and excision.*—Mrs F. aged 41, admitted November 2d, had been subject for many years to piles, and occasionally to protrusion of the gut, for which, seven or eight years ago, the loose skin around the anus was cut off, and two years ago a tumour descended at stool, which was afterwards extirpated. On examination, I found attached to the posterior part of the rectum, about $2\frac{1}{2}$ inches within the sphincter, a pyriform tumour the size of an orange, which was forcibly protruded on going to stool. Its texture was firm, but the mucous membrane covering it was spongy, granular, lobulated, and of a deep red colour. The pedicle was hard and smooth, about an inch and a half long, and as thick as the little finger.

On the 12th, after free evacuation of the bowels, she was placed on her knees in bed, and the tumour forced out. It filled so completely the rectum, that no fæces could be passed until it was protruded. A firm ligature was tied around the pedicle as high as possible, and the part was divided immediately anterior to it. Before it was detached, a tenaculum was passed through the pedicle to prevent its retraction, but as the ligature remained firmly fixed, and no bleeding took place, it was withdrawn, and the part receded. Four hours after, profuse hemorrhage occurred, and before I saw her she had lost from three to four pounds of blood, and was in a state of alarming syncope. I introduced a speculum, dilated the sphincter, and washed out the rectum with cold water; but the ligature, although rather loose, was fixed, and no bleeding point was visible. I did not, therefore, use the actual cautery, as I intended, but introduced a large piece of sponge dipt in turpentine. The bleeding was permanently arrested, and she was dismissed cured on the 12th of December.

When the polypus is of recent origin, its surface is generally smooth and polished. But after some time has elapsed, the investing mucous membrane, from the irritation to which it is subjected by the daily protrusion of the tumour, and the manual efforts necessary for its replacement, becomes tumid, spongy, and ulcerated. The pedicle being so often put upon the stretch, becomes elongated, and its fibres firmer and more condensed than any other part of the tumour.

Case 40. *Polypus of the rectum in a child, cured by ligature.*—A boy, 4 years old, was brought to the Infirmary for advice on the 28th of July last, on account of a tumour in the rectum, which had existed for two years. It had always been protruded on his going to stool, and was sometimes returned with difficulty. In order to examine it properly, an enema was administered, in the operation of which, the tumour made its appearance externally. It was about the size of a hen's egg, pear-shaped, of a firm texture, covered with the mucous membrane, and attached to the posterior wall of the rectum by a thin smooth pedicle about an inch and a half in length. The rectum was relaxed, and a considerable portion of it was prolapsed with the tumour. I tied the root of the pedicle with a strong ligature, and returned the parts into the rectum. On the sixth day, without any unpleasant symptoms having supervened, the tumour dropt off, and was passed by stool.

XV. Secondary Hemorrhage.—I shall select two cases, which, on account of their severity, and of the operations required, and their fatal results, are more especially entitled to noticed.

Case. 41. *Lacerated wound of the groin, secondary hemorrhage, ligature of the external iliac and femoral arteries, death.*—E. M. aged 38, admitted December 16th. When in a state of intoxication she walked up the gangway of an unfinished building, which she mistook for her own house, and fell down between the joists, a height of 12 feet, where she was found by the police and carried to the Infirmary. There was a scalp wound over the upper part of the right temporal bone. The fourth right rib was fractured, and the integuments on that side of the chest, abdomen, neck, face, shoulder, and arm, were emphysematous. There were two lacerated wounds in the right groin, one passing in a spiral direction from the anterior superior spine of the ilium to the *labium pudendi*—the other in the same direction but an inch lower. On raising the narrow and detached slip of integuments between these two wounds, the artery, vein, and nerve were exposed as distinctly as if the parts had been carefully dissected. The artery was laid bare, and its pulsations seen from the edge of Poupart's ligament for

two inches down the thigh, and its sheath opened for more than half an inch. Several of the absorbent glands were denuded, and the lower edge of the external oblique muscle was exposed with the inguinal ring, and the round ligament passing through it. In front of the same leg were two lacerated wounds, which met at an angle two inches above the ankle, and formed a large flap, and when this was turned up, it was found to involve more than a half of the circumference of the leg, and to expose three inches of the tibia. The wounds were dressed, and a broad bandage applied to the chest.

At first the pectoral symptoms were the most urgent, and required the use of free depletion, calomel, antimony, &c. after which the cough and dyspnœa subsided. The wound on the head, those in the groin only partially, and that on the leg sloughed, exposing the tibia.

On the 7th of January, an hour before the visit, when attempting to raise herself in bed to void urine, arterial hemorrhage took place suddenly from the groin, and, although less than two minutes elapsed before it was commanded by pressure, yet more than a pound and a half of blood was lost. Her face became blanched, her skin cold, and the pulse so feeble as hardly to be counted. Several hours elapsed before she had so far rallied as to permit the groin to be examined. In the meantime the bleeding was arrested, and a dresser was stationed at her bedside, who, with the house surgeon, Dr William M'Kechnie, continued at hand to watch and prevent its recurrence. *

A consultation was held at 9 P. M., when, on removing the tourniquet to examine the groin, a profuse discharge of arterial blood took place, which was promptly stopped by compressing the external iliac. At this time we learned that she had experienced during the whole of the previous day, severe paroxysms of pain in the lumbar and uterine regions, and that she believed herself to be pregnant, not having menstruated for four months. It was unanimously agreed that the external iliac artery should be tied; but before doing so, and after she was laid on the table, I divided the narrow band of integuments between the two wounds, to ascertain if a ligature could be applied between the bleeding point and Poupart's ligament. There was an ulcerated cavity that could hold a walnut, and when my

* It would be doing injustice to Dr M'Kechnie were I not to record my sense of the great attention he bestowed upon this case, and of the skill and promptitude with which he met the different and dangerous emergencies as they occurred. During the twelve months that he acted as my clerk, his industry and zeal were marked and unremitting; he spared neither labour nor kindness in the discharge of those important and onerous duties of his office; and the professional skill and tact he displayed, showed him to be not only an extensive reader, but an acute and industrious observer.

friend, Dr Andrew Buchanan, removed his fingers from the external iliac, blood burst out in a large stream from the femoral artery, immediately below the outer edge of Poupart's ligament.

Being satisfied that a sound portion of the artery could not be secured in the ulcerated cavity, I proceeded to tie the external iliac, having previously desired my assistant to transfer the compression to the ulcerated mouth of the femoral, to restrain the hemorrhage, and allow clear space for the incisions. Sir A. Cooper's operation was adopted; the vessel was easily exposed; the sheath opened with a pair of dissecting forceps, and a single ligature applied. Not more than two drachms of blood were lost, and the operation did not exceed three minutes. The wound was closed by suture, straps, and compress, and the ulcer dressed with camphorated oil.

In a few hours the right leg had regained its natural temperature, but several days elapsed before the circulation was so far restored as to bring about a florid state of the granulations in the leg and groin. On the 9th, she complained of acute pain in the iliac region, aggravated by pressure, which was removed by two doses of calomel and opium. The pubic half of the wound adhered, and the other part suppurated, and discharged a good deal of purulent matter, and shreds of sloughy cellular substance, apparently from the iliac fossa. On the 18th, the cavity in the groin was nearly filled with small healthy granulations, the sore on the leg was contracting, and the discharge from the operation wound diminishing. No arterial pulsation could be felt in the limb. The ligature had not separated. The pulse was 96; the appetite good; and the strength improving.

At 1 o'clock, on the morning of the 19th, being the 13th day, or about 276 hours from the first attack, without any obvious cause, and while she was in a state of perfect rest, arterial hemorrhage took place again from the old cavity in the groin. It stopped spontaneously, but not until a pound and a-half of blood was lost. The effects of this were at once visible; the countenance was exsanguine; the skin cold and clammy; the pulse hardly perceptible; and the breathing rapid and laborious, with distressing jactitation. She was now evidently in a most alarming situation, and it became a question for serious deliberation, whether we ought to attempt to secure the bleeding mouth of the vessel. Stimulants were freely administered, until the pulse was felt at the wrist, pressure being applied at the same time to the point from which the bleeding proceeded. It was then, as a last resource, agreed to attempt to place a ligature on the femoral artery below as well as above the ulcerated opening, it being doubtful from which extremity of the vessel the bleeding proceeded.

It was not considered safe to remove her from bed. I introduced my finger into the ulcerated cavity in the groin, and felt bulging out immediately below Poupart's ligament, a loop of soft but elastic artery. Before it could be satisfactorily exposed, I had to make a perpendicular incision through the integuments and fascia, from the upper edge of the ulcer across Poupart's ligament. The ulcerated opening in the artery, was half an inch in length, and embraced two-thirds of its circumference, the posterior part being entire, but softened. At three different times, and after much trouble and delay arising from the diseased state of the artery and surrounding parts, I passed a ligature around the vessel; but on each occasion its coats gave way, and on removing the pressure, the hemorrhage returned. It now became necessary to divide Poupart's ligament, before a sound part of the artery could be reached. At this step of the operation, we had to guard against wounding the peritoneum, and dividing the epigastric artery. They were avoided by cutting slowly through the ligament from without inwards, and in a direction upwards and a little outwards from the external side of the artery. I was thus enabled to see every part before it was divided, and I at last exposed and passed a ligature around a sound portion of the external iliac, below the origin of the epigastric. During this procedure, blood was once or twice observed to issue from the lower opening of the femoral. This part was exposed by a small incision, and the vessel tied above the *profunda*. The wound was then dressed.

She bore this operation with much fortitude, and was beginning to rally from it, when she became very restless, and died in about three hours.

On inspection, it was found that she was not pregnant. A fold of the ileum adhered to the peritoneum, nearly over the spot where the iliac artery was first tied, and on separating this, the parts had a perfectly natural appearance, the peritoneum being entire, and but little disturbed by the operation. There was a space of an inch and a quarter between the two upper ligatures, from which the *circumflexa ilii* and epigastric passed off. The second ligature was fixed on the external iliac about four lines above Poupart's ligament, and the third, above the *profunda*, about two inches of the femoral artery in this space being destroyed.

The right common iliac artery was injected for the purpose of ascertaining the source of the collateral circulation that led to the second attack of hemorrhage, but it did not succeed. The external iliac gave way above the first ligature. The obturator, which arose from the internal iliac, sent a large branch

upwards and forwards, over the brim of the pelvis, which joined the epigastric. The inosculations of this vessel with the internal mammary could be ascertained. The fourth rib on the right side was fractured about its middle The lung was not adherent to the parietes.

Connected with the progress and treatment of this interesting but unfortunate case, there are several points of practical importance, to a few of which I shall very shortly advert. The wounds in the groin did not at any time exhibit a sloughy or gangrenous appearance, but they were the seat of ulceration, which, although a slower process, is nevertheless in some constitutions and habits of body not less destructive. The femoral artery was lying at the bottom of this unhealthy cavity, with its sheath detached and laid open, and so deprived of its nutrient supply of blood as to be not only ill fitted to resist, but even prone to assume the ulcerative destruction in which the surrounding soft parts were involved. In this way we must account for the hemorrhage which occurred for the first time on the twenty-third day from the receipt of the injury.

In so far as the risk of hemorrhage is concerned, an artery wounded, and one opened by ulceration, are in the same condition, and both required to be secured immediately above and below the wounded or ulcerated part. In other respects, however, these two conditions are not analogous. In the former, the vessel being sound, can be not only more readily tied, but more certainly obliterated; while in the latter, the search must be made in diseased parts, and when found, the artery may be unable to bear the pressure of a ligature, which, to be successful, must be applied to a sound part, and as close to the diseased opening as possible. If any important branch or branches pass off between the ligature and the ulcerated opening, the hemorrhage is very apt to recur so soon as the collateral circulation is established; and it is this circumstance which has rendered ligature of the external iliac for hemorrhage from ulceration or sloughing of the femoral in the groin, so generally unsuccessful. The vessel, in the majority of cases, is secured above the origin of the epigastric and circumflex, which arteries in a few days may bring back, as in the case we have detailed, a current of blood to the main trunk, and thus lead to a renewal of the hemorrhage. It therefore becomes a matter for consideration, whether, if the patient has strength to bear a more tedious operation, it might not in some cases be better and more successful practice to trace the diseased artery from the ulcerated opening, up into the abdomen, dividing, if necessary, a part, or even the whole of Poupart's ligament. I have shown that this operation is practicable, and that it may be performed

without injury to any important part; and if we consider the very small chances of success from applying a ligature to the external iliac, in the usual situation, we are certainly justified in adopting any other method which holds out a better prospect of permanent cure, without adding materially to the patient's danger. This also, however, may prove unsuccessful; for although a ligature be applied to the external iliac, below the epigastric and circumflex arteries, we are not secure against the further loss of blood. On the contrary, the current of blood passing into these vessels immediately above the ligature, would interfere with the formation of a clot, and with the obliteration of the main artery, and, as in a case that occurred to Sir A. Cooper, might lead to fatal hemorrhage.

Case 42. *Amputation for disease of the knee-joint; secondary hemorrhage; ligature of the femoral artery; death.* —J. A., aged 20, was admitted on the 4th of April, on account of disease of the synovial membrane, and articular cartilages of the right knee, of three years duration. On the 28th, amputation by the double flap was performed three inches above the affected joint. The hemorrhage was rather profuse, and besides fifteen arteries which required ligatures, it was found necessary to tie the femoral vein, after various expedients had been tried without success.

At 4 o'clock of the following morning, in consequence of rather profuse hemorrhage, the stump was undressed, and two additional arteries tied. Profuse suppuration and premature detachment of the ligatures were the consequence, and on the 5th of May, at the hour of visit, smart arterial bleeding took place, as if from a large vessel. It was arrested by compressing the femoral in the groin, and when the dressings were removed, the bleeding point could not be discovered.

It was agreed at a consultation, that the femoral artery should be tied above the origin of the *profunda*. This was done without moving the patient from his bed, and the peculiar jerking state of the pulse which had been present for two days, immediately disappeared. The suppuration of the stump became still more profuse; the end of the bone projected, and he had a large bad sore over the sacrum.

Early on the morning of the 3d of June, he lost about twenty ounces of arterial blood from the stump, which was checked by applying a tourniquet immediately below the wound in the groin. On the 4th, he had two slight attacks, and on the 5th, after the dressings were removed, a full stream of florid blood escaped at the lower angle of the stump, apparently from the femoral artery; but its orifice could not be seen. It was at once arrested by compressing the femoral two inches higher up, and to this point the tourniquet was shifted. No pulsation could

be felt below the ligature. After two or three slight returns of the bleeding, his strength declined rapidly; diarrhœa ensued, and he died on the 16th.

On inspection, it was found that the end of the femoral artery in the stump was ulcerated, and about two inches of its cavity were filled by a recent coagulum. The ligature was applied above the *profunda*, which was quite patent, and it appeared that this was the source through which the blood was returned to the femoral, and by which the secondary attacks of hemorrhage were occasioned, and that the attack which called for an operation was probably owing to the premature separation of the ligature from the mouth of the femoral artery in the stump, in consequence of profuse suppuration.

XVI. Traumatic *Phlebitis* and Purulent Deposits.—These morbid occurrences are frequently met with as a consequence of injuries and operations, and so far as I have observed, they are uniformly fatal. The constitutional symptoms by which they are accompanied are urgent, and generally of the typhoid type, while often the indications of local or visceral lesions are extremely obscure.

It sometimes happens that primary *phlebitis* takes place, and abscesses form in the vicinity of the injured part, without the subsequent occurrence of secondary deposits in the viscera or other distant parts of the body. This is observed most frequently in the puerperal state, and more rarely after surgical operations, and may probably depend on the greater rapidity to a fatal termination of the former cases, and the consequently shorter period allowed for the developement of secondary disease.

Case 43. *Carcinoma of the rectum; excision followed by fatal phlebitis.*—Mrs A., aged 38, admitted on the 8th of October. The ulceration, which had an irregular cauliflower appearance, with thickened, indurated, and everted edges, involved the whole verge of the anus, and extended more than two inches up the gut, being rather firmly attached to the recto-vaginal septum. Externally, it measured three inches in length, by two in breadth; was the seat of acute lancinating pain, and occasionally the source of hemorrhage. The disease was of four years duration, and several partial operations had been performed upon it. Her general health was greatly impaired. She was emaciated and irritable, and had the haggard countenance and sallow complexion of one who had suffered much and long.

On the 13th, the external ulcer, and two and a-half inches of the rectum were excised. The bleeding from two hemorrhoidal arteries was profuse. On the 14th and 15th, the bowels were moved by injecting tepid water into the divided end of the rectum, which was easily seen and reached. There was no abdo-

minal pain, but the pulse ranged from 100 to 110 in the minute. On the evening of the 17th, she had two rigors, with increase of the febrile symptoms, and profuse perspiration. On the 19th, the wound was sloughy, the rigors returned, she became delirious, and died on the 20th, being the eighth day from the operation.

The thoracic and abdominal viscera were sound, as was the peritoneum and the cellular texture of the pelvis. The remaining part of the rectum was not even inflamed. The uterus was enlarged, and measured four inches and a-half in length, and three and a-half in breadth, and the membrane lining its cavity, especially at the cervix, was covered with a number of small spherical vesicles. The veins of the vaginal septum, and around the neck of the uterus, were inflamed and filled with purulent matter. When divided, their mouths stood open, and the surrounding soft parts were engorged with blood, and contained a number of small abscesses. There were also one or two small purulent deposits in the lower *labium* of the uterus.

In this case, from the obscurity of the symptoms, or rather from the total absence of any distinct appearance of local disease, it was impossible during life to do more than guess at the morbid changes likely to be met with on dissection. When the inflamed veins are superficial we may sometimes discover the existence and extent of the disease, but when they are deep-seated we merely observe, and that not always, a change in the discharge and appearance of the wound, with the usual constitutional characteristics of symptomatic fever; and even when numerous secondary deposits have taken place in the internal organs, the symptoms may lead to a suspicion of their existence, but rarely to accurate inferences on their locality.

Case 44. *Fracture of the femur ending in disease of the knee-joint; phlebitis and secondary abscesses after amputation.*—J. B. aged 11, weaver, admitted April 19th, having fallen from a height ten days before, and injured his left knee. He was said to have walked but with lameness for several days, and a surgeon who examined the limb soon after the accident could not detect a fracture. The swelling and tension were great, and there was a fluctuating tumour on the inside of the thigh, immediately above the knee. There was shortening or distortion of the limb, but on rotation a very obscure crepitus was felt immediately above the condyles.

On the 21st, the fluctuating tumour having extended to near the upper third of the thigh, an incision was made in it through the fascia and muscles, and twelve ounces of purulent matter evacuated. The lower half of the femur anteriorly was denuded of periosteum, and the joint was involved in the suppuration. He lost strength rapidly, diarrhœa supervened, and on the 12th

of May amputation was performed, when the femur was found fractured transversely above the condyles, and the ends of the bone as well as the joint were denuded of periosteum and of cartilage. The stump adhered; but his strength continued to diminish; the diarrhœa became more troublesome; and he had rigors and occasionally vomiting, but neither cough nor diarrhœa. He died on the 23d, being the forty-fourth day from the injury, and the eleventh after amputation.

The femoral vein through nearly its entire course, about one-half of the saphena, and the external iliac and lower third of the inferior cava were inflamed, and their lining membrane covered with recent lymph and pus. The left pleura contained several ounces of sero-purulent fluid, and on the surface of both lungs, but particularly the right, there was a number of small abscesses of different sizes visible through the investing serous membrane, to two of which, after a careful search, inflamed veins were traced. The spleen was studded with a number of small vascular spots, none of which had suppurated, although, in connection with the largest, a minute vein in a state of inflammation was found.

In the next case, the pain in the right hypochondrium and complete jaundice seemed to point out the liver as the chief seat of the secondary disease. It was not affected, while the lungs, which were extensively involved, yielded no prominent or well-marked symptoms.

Case 45. *Amputation of a diseased ankle, followed by phlebitis and purulent deposits.*—D. C. aged 35, tailor, admitted May 4, 1836. The right ankle, which was distorted by club-foot, was swollen, and the seat of abscesses, which led to caries of the bones forming the articulation. He suffered from acute pain and occasional diarrhœa, his health was much impaired, and his pulse seldom under 120. On the 20th, double flap amputation below the knee was performed. He remained in a favourable state, and the stump was adherent till the evening of the 25th, when he had a rigor followed by profuse perspiration, and a return of the diarrhœa. The pulse was 130, and feeble. *Calomel and opium.*

June 1st. Has had one or more rigors every day since the 25th. Complains of dull pain on pressure in the right hypochondrium. The skin is yellow; the pulse 140, feeble; and the tongue furred. *Emplast. vesicat. hypochond. dextr.*

2d. The skin is deeply jaundiced; occasional delirium; countenance hippocratic; no appearance of disease in the stump or in the course of the veins of the thigh; respiration natural; no cough. Died on the following morning at six o'clock.

On dissection the flaps were found adhering throughout. The popliteal vein was thickened and of a deep red colour, and on some parts of its inner surface adherent lymph, and on others pu-

rulent matter were observed. The right cavity of the pleura contained six ounces of sero-purulent fluid, deeply tinged with bile, and the lung on that side was covered with about a dozen of small abscesses, varying in size from a pea to a filbert, one of which had perforated the pleura. The liver was sound. On the surface of the spleen there were several small ecchymosed patches, and in one of these a minute speck of purulent matter was seen.

In the following case the evidence of primary phlebitis was more distinct, and the existence of hepatic disease was more correctly indicated by the symptoms.

Case 46. *Phlegmonoid erysipelas followed by disease of the ankle; amputation; phlebitis; death.*—J. H. aged 50, collier, admitted January 14th, on account of extensive sloughing and ulceration of the right foot and leg, consequent on erysipelas, which commenced five weeks ago. On the 3d of February, a loud grating noise was heard on moving the ankle, and the articulating ends of the bones were, on the introduction of a probe, found to be carious. On the 16th, amputation was performed by the single flap below the knee. No unfavourable symptoms appeared till the 24th, when he became unusually restless and irritable. The stump looked well, and the discharge was moderate. In the evening he had a rigor of an hour's duration, followed by very profuse perspiration, and next day he was drowsy, and the pupils dilated. The pulse was 140, and the tongue dry and furred. On the 26th, after another rigor, he became delirious and jaundiced, vomited frequently, and complained of acute pain on pressure in the right hypochondrium, and in the course of the femoral vein, which was felt hard. He died in the evening, being the tenth day after amputation. Several very small abscesses were observed in the substance of the flap, but no inflamed veins could be traced to them. The femoral vein, from Poupart's ligament to mid-thigh, was inflamed and thickened, and contained lymph and purulent matter. The anterior surface of the right lung, especially the inferior lobe, was studded with a number of small defined abscesses, which contained pus and lymph, and the surrounding parenchymatous substance was congested, and in some places indurated. There were also two superficial deposits of purulent matter on the convex surface of the liver, and four of a smaller size in the spleen. A large inflamed vein was traced to one of the pulmonary and one of the hepatic abscesses.

The last case shows the connection occasionally observed between *secondary* phlebitis and visceral abscesses, as the next does between *primary* phlebitis and suppurations in the wound.

Case 47. *Amputation for necrosis of the tibia, followed by phlebitis.*—P. J. aged 45, wright, admitted 12th February on account of necrosis of the middle of the tibia, with old and

extensive ulceration of the leg. He was a habitual dram-drinker; his general health was much impaired; his countenance was sallow and bloated; and his pulse 96 and feeble. On the 21st, in consequence of profuse discharge and increasing debility, it was deemed proper to offer him the chance of amputation, which was performed below the knee by the double flap method. He continued easy and free from febrile excitement till the 24th, when he had an attack of hemorrhage from the stump, and became restless and alarmed. This again subsided till the morning of the 29th, when he had a rigor. The pulse was 130, and sharp; the skin hot and dry; and the tongue smooth and florid. The rigor returned on the 2d and 3d of March, his countenance became more collapsed, the respiration hurried, but not laborious or painful, and the pulse rose to 140. He complained on pressure in the popliteal space, but no enlarged vein could be detected. The discharge from the stump was moderate. On the 5th he was greatly relieved, and his pulse had fallen to 92 in the minute, but on the following day, after another rigor, he complained of pain at the ensiform cartilage on pressure and deglutition, which was followed by incipient hiccup; and before death, which took place on the 9th, he was jaundiced, and the femoral vein became painful and indurated.

On inspection, the stump was found adhering throughout. A few minute abscesses were found in the flaps, and to almost every one of these a small inflamed vein could be traced. The femoral vein, from the popliteal space to near the groin, was inflamed, its lining membrane thickened and vascular, except where it was covered with patches of lymph and purulent matter. There was a circumscribed abscess on the anterior surface of the right lung, about the size of a pigeon's egg. Several minute deposits of purulent matter were also found in the upper lobe of the same lung. No other marks of disease were detected, except ulceration of Peyer's glands in the small intestines.

In the next case no visceral abscesses were discovered, but death seemed to be occasioned by serous effusion into the left cavity of the chest.

Case 48. *Contusion of the knee, followed by periostitis and caries of the joint; amputation; phlebitis without purulent deposits.*—P. M. aged 32, labourer, admitted April 7th. Ten days previously his left knee was injured by a cart, and on his admission deep suppuration was discovered, and an opening was made a little below the knee. Several deep abscesses formed around the joint and along the thigh. At first synovial fluid was observed to escape, the joint became partially dislocated, and admitted of free lateral motion, and extensive caries of the articulation was discovered by the probe. He was greatly emaciated, and perspired profusely; and the pulse was about 130.

On the 19th of May, amputation was performed at the middle of the thigh, and for several days after there was a decided improvement; he slept and eat well; and his pulse fell to 88. The discharge from the stump was at first copious, but it gradually diminished, and all the ligatures separated. On the 8th of June, after severe diarrhœa, about a third of the stump reopened, but did not discharge much. He began to complain of cough, with acute pain in the left side of the chest, with occasional rigors. He died on the 12th.

Upon inspecting the body, no abscesses or inflamed veins were seen in the stump. The popliteal vein, and about two inches of the lower end of the femoral were sound; but three inches higher up the latter vessel was filled with lymph and purulent matter, its coats thickened, and one or two small abscesses immediately exterior to it. The left cavity of the pleura contained a pound of sero-purulent fluid. No abscesses were detected in the viscera.

I shall confine the few remarks I have to make on *phlebitis*, as exhibited in the cases now detailed, to the local or primary changes in the veins and wound, and to the consecutive affections or secondary abscesses with which they are so frequently followed.

Inflammation may commence either in the small or large veins of a wound. When in the former, its progress is slow, the affected vessels become gradually filled with pus and lymph, and ultimately obliterated, a chain of small abscesses are formed in the cellular texture surrounding them, and until the main venous trunks are involved, neither the local nor constitutional symptoms are very urgent. As long as the disease is confined to the small veins, there is not much risk of purulent matter getting into the circulation, because the current of blood through these vessels is very soon arrested. But when purulent matter is thrown out from the inflamed surface of a large vein along which the circulation is longer continued, the danger from this cause is greatly increased. In some of the cases after amputation, we have found the mouths of the large veins on the face of the stump quite sound; but on tracing them upwards, inflammation and its consequences were detected, apparently as if the disease had been extended to them from the smaller branches, which were primarily affected. In the majority of the cases the operation wound was in a healing state; there was no unusual suppuration present; and seldom was any hardness or cord-like enlargement of the affected veins discoverable by external examination.

The secondary affections consisted in the formation of numerous small abscesses in the thoracic and abdominal viscera, ge-

nerally near their surface, although distinctly in their parenchymatous substance, most frequently in the lungs, and especially the right one, and sometimes penetrating the serous membrane covering the organ, as the *pleura*, and giving rise to more extensive inflammation. The surrounding substance was generally engorged as if infiltrated with blood, and there were also several small ecchymosed patches found near the surface of the lungs, liver, and spleen, where suppuration had not taken place. In two cases only were inflamed veins found in connection with visceral abscesses, although in all, this morbid combination was diligently sought for, and in one case a small inflamed vein was traced to one of the congested spots in the spleen, but no pus had formed. In all the cases rigors, yellowness of the skin, often amounting to complete jaundice, great prostration of strength, and other typhoid appearances, characterized the progress of the visceral disease, but seldom, probably, from the circumscribed portions of the organs affected, were their functions so disturbed, or the diagnostic symptoms so well marked, as to indicate distinctly the diseased locality. No secondary abscess could be discovered in two of the cases; but in one pleurisy existed with sero-purulent effusion into the chest.

Primary traumatic *phlebitis* and secondary or visceral abscesses are very frequently but not invariably conjoined. It is difficult, however, to point out clearly their relation to each other as cause and effect. *Phlebitis* seldom occurs after operations on healthy individuals, or for recent injuries, but in exhausted and irritable subjects, where extensive and continued suppurations have been present, it frequently supervenes. This fact is strikingly illustrated by the last five cases, in all of which from this cause amputation proved unsuccessful. As to the secondary affections, these are by some supposed to arise from the translation of purulent matter from the wound to the viscus or organ to be afterwards affected, when it is simply deposited; while others maintain that, after being mixed with the blood, the purulent fluid acts on the capillary terminations of the vessels as a local irritant, and thus inflames them, and leads to abscess of the neighbouring parts. If a certain degree of exhaustion and constitutional irritability must necessarily proceed the development of the local *phlebitis*, it is not unreasonable to suppose that the same conditions of body may, without calling in the aid of purulent absorption, explain the subsequent occurrence of secondary abscesses. We occasionally meet with these abscesses after continued constitutional excitement, as in erysipelas and scarlet fever, where no suppuration or primary *phlebitis* can be discovered. It is nevertheless probable that, in inflammation of large veins,

purulent fluid is frequently mixed with the blood, and carried into the circulation, so as to become a source of internal or secondary disease; but in what manner this is produced has not been satisfactorily ascertained.

17, *St Vincent Place, October* 1, 1836.

ART. II.—*On the Morbid Appearances in death by Drowning, with Cases and Dissections.* By WILLIAM OGSTON, M. D. Aberdeen.

THE value of the method which we chiefly owe to late writers in France, of estimating, as far as possible, by numerical data, the relative frequency of the characteristic signs and morbid appearances in various diseases, is now very generally appreciated, and promises at no distant period to be extensively available for the purposes of accurate diagnosis and prognosis, in cases where precision was not formerly to be expected. But if we admit the importance of the statistics of diseases generally, and if hopes are held out that, in this way, physic may in time become what it has never yet been, almost an exact science, of how much consequence is it that we should avail ourselves of its aid in that branch of medicine where rigid accuracy, if attainable, is so imperatively called for,—I mean Medical Jurisprudence. It was with this impression that I undertook the task of condensing and arranging the details of those cases of death by drowning, which have come under my notice, chiefly during the last six years, in police practice. The writer is well aware that the value of such cases is exactly in the ratio of their numbers; but if others, placed in circumstances favourable for this purpose, could be prevailed upon to add to them the sum of their experience in like cases, the results would be such as the medical jurist would sufficiently comprehend. In what follows, the cases are first arranged principally with reference to the time that had elapsed after immersion, before the bodies were seen; and afterwards the morbid appearances, external as well as internal, are attempted to be arranged nearly in the order of their importance.

CASE 1.—June 29, 1836, $5\frac{1}{2}$ P. M. George Mennie, aged 5, two or three minutes immersion, seen twenty minutes after death. Surface pale; features composed; pupils dilated; joints supple; body coldish; legs and nails blue; a whitish froth about the lips and nostrils in considerable abundance. A quantity of water containing particles of food escaped from the mouth on pressing the abdomen. Artificial respiration begun, and kept up for upwards of an hour and twenty minutes. During this ope-

ration about half an ounce of water escaped in jets from the tube in the trachea. At 6½ P. M. the cheeks began gradually to redden, the tinge by 7¼ P. M. had slowly deepened to a livid hue, which was then spread over the sides of the face and external ears.—Accidental.

CASE 2.—April 18, 1835. David M'Wattie, aged 40, five minutes immersion, seen twenty minutes after death. Body cool; some heat about the *præcordia*; surface pale; features composed; pupils broadly dilated; limbs supple; a little white froth about the lips; water escaped from the mouth on pressing the abdomen; lips and nails blue. Frictions had been assiduously employed, and artificial respiration was commenced, and kept up for two hours; at each expiration quantities of water jetted out of the tube in the trachea, (not less in all than three or four ounces.) During this operation some brandy was injected into the stomach, whose odour was afterwards distinctly perceptible in the expired air. 8½ P. M. External ears and posterior parts of the head and trunk livid.

CASE 3.—December 12, 1832. Jean Lindsay, aged 60, seen half an hour after death; supposed about three minutes immersion. Froth about the lips; surface pale; no anxiety about the features; temperature of the surface of the trunk but little reduced; pupils dilated, and somewhat contractile by the stimulus of light; joints supple; lips and nails livid.—Accidental.

CASE 4.—August 17, 1836. William Sutherland, aged 16, nearly one hour's immersion, seen twenty minutes after. Had been in a warm bath; features calm; surface pale; joints relaxed; heat about the præcordia; no lividity of the lips or nails; a copious white froth about the lips and nostrils; teeth clenched; fingers open; pupils broadly dilated; artificial respiration for a short time.—Accidental.

18th. Twenty-five hours after death. Lips slightly livid; face, neck, and upper part of the chest somewhat swollen, with moderate lividity of the face and neck; lividity more marked on the dependent part of the head and trunk, and on the whole of the fore-arms and on the nails. Fluid blood of a cherry-red colour oozing from the mouth and nostrils; the joints rigid.

CASE 5.—September 9, 1836. James Will, aged 35, four hours and a-half immersion, seen half an hour after removal from the water. Features composed; surface generally pale; lips and nails natural; pupils dilated; fingers and thumbs semibent; joints supple; jaws clenched; copious white froth about the lips and within the nostrils.

10th. Thirty hours after removal from the water; lips and nails slightly blue; lividity of sides and dependent parts of the head, neck, and chest; slight abrasions of the right shin and back of right fore-finger; joints and knuckles rigid.

Inspection.—Thirty-two hours after removal from the water. Lividity of the whole of the face and right upper extremity; contusion of the right instep and shin, and on the left shoulder; a very little froth about the lips in one nostril, and in the mouth; fingers in their natural position.

Froth was observed in the larynx and trachea, only at two points. Nearly an ounce of water at the bottom of the trachea; lungs dilated; diaphragm arched upwards to the upper border of the fourth rib; lungs but little congested, filled with a reddish frothy fluid; left lung œdematous, and emphysematous in parts; heart pale; walls of the right ventricle attenuated; dark fluid blood in the right cavities of the heart, in both *venæ cavæ*, and in the pulmonary veins. A small clot in the right ventricle; dark blood in small quantity in the left side of the heart and in the aorta, in the former situation partly coagulated.

The liver was hypertrophied, granular, and moderately congested; gall-bladder full; stomach distended with clear water; spleen moderately congested; colon thin, translucent, and for the last five inches much contracted; bladder empty; kidneys slightly congested.

The scalp was gorged with fluid blood; the skull very thick; the sinuses and veins within the head were turgid; the *pia mater* injected; the brain was firmer than usual, pale, with but few bloody points in its interior; and the ventricles were empty.

Case 6.—January 8, 1836. 12½ P. M. John Humphrey, aged 35, six hours immersion, seen six hours and a-half after death. Pupils natural; features had the peculiar expression of those who are short-sighted; surface cold; head and neck slightly swollen, and of natural colour, except a partial flush in parts. Top of the chest reddish; ears slightly livid; no lividity of the lips or nails; lower lip drawn in under the upper; incisors clenched firmly on the tip of the tongue; mud on the teeth; sugillations in the dependent parts of the body; joints rigid.—Accidental.

Case 7.—August 23, 1831. Mrs Collie, aged 50, period of immersion supposed six hours; seen seven hours after death. Countenance rather composed; neck and face swollen; pupils dilated; white froth about the mouth; sides of the head, face, neck, and posterior parts of the trunk livid; sand on the legs and feet; contusions along both shins, above the left knee, top of the left thigh, over the right nates, and back of the right fore-arm; cut above the right ankle, and abrasion over the back of the right fore-arm; on turning the body, water escaped from the mouth; and the joints were rigid.

Case 8.—January 31, 1836. William Adam, aged 36, seven hours immersion; seen nine hours and a-half after death. Features composed; face of reddish colour; back of the head and external ears slightly livid; lips pale; head and neck slightly swollen; a blush of redness on the front and upper part

of the chest; pupils moderately dilated; fingers semi-bent; thumbs extended; joints rigid; elbows semi-bent; penis erect with paraphymosis; *cutis anserina* on thighs and legs; on pressing the trachea a little watery fluid with air bubbles escaped from the mouth.—Accidental.

Case 9. August 18, 1833, 8 A. M. Catharine Spowart, aged 28; eight hours and a-half immersion; seen nine hours after death. Face moderately swollen, with a reddish tint inclining to lividity; lips bluish; eyes prominent; pupils broadly dilated; fingers and thumbs semi-bent; joints flexible; trunk and extremities pale; water escaped from the nostrils on turning the body; neck remarkably short; a small wound on the right upper eyelid; contusion of the outside of the right elbow and thigh; laceration of the anterior perinæum, from the anus to the fourchette; soles of the feet and palms of the hands sodden; *cutis anserina* on the trunk and arms; sand on the abdomen and feet.

Sect. cadav. 19, 3 P. M. Swelling confined chiefly to the lower part of the face. Redness of the face had disappeared from the right side, with the exception of red points on the prominence of the cheek-bone and temple; left side of the face and head and dependent parts of the arms and trunk dark-red; lips a little blue; *cutis anserina* continued; clots of blood under the contusion of the elbow, and the wound in the perineum.

The tongue was in contact with the incisor teeth; a frothy watery fluid in the mouth, and in the trachea, whose lining membrane was of a dark-red colour; lungs distended; sixteen ounces of reddish serum in the cavity of the chest; two ounces of clear serum in the pericardium; frothy mucus in the larger *bronchi;* on cutting into the lungs abundance of frothy mucus escaped, even without pressure; large portions of both lungs hepatized, the remainder congested with dark fluid blood. Both *cavæ*, pulmonary veins, and right cavities of the heart filled with blood of the same character, which was also found in small quantity in the left auricle and ventricle, and in the aorta.

The vessels of the scalp were full of dark fluid blood; the skull unusually thick and solid; the *pia mater* injected; the brain soft; a considerable number of bloody points in its interior; about an ounce of serum in the ventricles, smelling faintly but perceptibly of spirits; a small bony concretion in each choroid plexus.

The liver was of a deep-red colour, and much congested, and the gall-bladder full. The stomach was filled with fluid of a spirituous odour; water in the lower portion of the œsophagus; smaller intestines of a dark red; larger intestines contracted; when flattened their breadth across varied from $\frac{3}{4}$ths to $\frac{7}{8}$ths of an inch, and only admitted the point of the fore-finger; intestinal mucous coat softened. The bladder was contracted and empty; the kidneys congested, and their interior smelt of spirits.

Case 10.—October 12, 1836, Magnus Tait, aged 42, supposed ten hours immersion; seen three quarters of an hour after removal from the water; face and upper and fore part of the chest red; features calm; pupils moderately dilated; mouth closed; lower jaw and other joints flaccid; no froth about the lips or nostrils or in the mouth. Tongue in the natural position; a little yellowish fluid escaping from the corners of the mouth; *cutis anserina* nearly general in the trunk and extremities; dependent parts of the body pale; fingers semi-bent; no lividity of the lips or nails.

Inspection 17 hours after death. Dependent parts of the body of a deep-red colour, approaching to lividity on the back of the head and neck; lips and nails slightly livid; *cutis anserina* persistent; muscles rigid and knotted; joints rigid. Water was found in the back part of the mouth, pharynx, and lower portion of the œsophagus; and six drachms of water, with a little froth on its surface, were collected from the lower part of the trachea; abundance of white froth in the bronchi and air-cells of the lungs; diaphragm arched upwards on a level with the fifth rib; lungs dilated; very sparingly congested, except at the dependent part of the lower lobe of the right lung.

About three ounces of serum were found in the pericardium. Right cavities of the heart, both cavæ, and pulmonary artery, gorged with dark fluid blood. Left auricle and ventricle and the aorta half-filled with dark-blood, partly coagulated, in the two latter situations.

The stomach, which was small, presented the hour glass contraction; its lining membrane was much softened, white and pultaceous, except near the pylorus, where were numerous dark-red dots. The liver was large, red, and much congested; the gall-bladder full; spleen hepatized, and moderately congested; colon contracted; smaller intestines dark-coloured and congested. The bladder was empty and contracted; both kidneys very large, much congested and firm; and their exterior presented several golden-looking spots, with a semi-metallic lustre, having their seat in the proper coat.

The scalp was vascular; arachnoid coat very thick and opaque, with effused serum underneath; *pia mater* at the base of the brain much injected; the brain was firm throughout; and three drachms of fluid were contained in the ventricles.

Case 11.—July 14, 1833, one P. M. Mrs Milne, aged 25, supposed seven hours immersion; seen fifteen hours after death. Face swollen and livid; lips blue; a frothy liquid, strongly smelling of spirits protruded from the mouth and nostrils; the pupils were dilated; the joints rigid; and the surface of the trunk and extremities pale. On turning the body water escaped from the mouth and nostrils.

Case 12. April 8, 1831, 3 P. M. Alexander M'Petrie, aged 45, eleven hours immersion; seen eighteen hours after death. Head swollen; head, face, neck, upper part of the chest and shoulders deep-red; dependent parts livid; rest of the surface pale; fingers and thumbs flexed; lips and nails blue; pupils dilated; abrasion of left upper eyelid, wound of the left lower, and contusion of the left upper eyelid with clot; abrasion of right forehead and front of the nose; contusion of right knuckles, fingers, left tibia, and front of right leg; joints rigid.

Inspection.—Clotted blood existed under the wound of the eyelids, as also underneath the contusions; teeth clenched; tongue in its natural situation; a little frothy mucus adhered to the back part of the trachea. The lungs, of a deep violet colour, filled the chest; dark fluid blood, and frothy mucus in considerable quantity could be pressed from the incisions in both lungs. Diaphragm arched upwards into the chest, on a level with the fifth rib; a few ounces of clear serum in the *pericardium*; both *cavæ*, pulmonary veins, and right cavities of the heart filled with blood, mostly in a fluid state; a little dark fluid blood in the left auricle and ventricle.

Dark fluid blood flowed from the usual incisions in the scalp; sinuses of the head turgid; trunk and larger branches of the carotid arteries distended with dark blood; brain healthy, not more vascular than usual; a little fluid in the ventricles; *venæ Galeni* turgid.

The œsophagus was filled with water.

The liver congested; gall-bladder full; stomach distended with watery fluid, having a spirituous odour; smaller intestines injected; kidneys congested; bladder half-full of urine.

Case 13. October 23, 1835, 4½ P. M. Jean Maconochie, aged 85, a blind woman, nineteen hours immersion; seen nineteen and a-half hours after death. Features composed; surface pale; external ears and back of the head livid; fingers and thumbs semi-bent; no lividity of lips or nails; irregular wound of right ear; abrasions on back of right hand and in front of both knees; joints rigid.

Case 14. November 28, 1831. Isabel Thomson, aged 45; six hours immersion; seen forty-five hours after death. Face and neck swollen, and reddish; surface of the trunk and extremities pale, except at the dependent parts, which were livid; pupils dilated; joints rigid; fingers semibent; thumbs drawn into the palms; lips and nails blue; eyelids half-open; mouth open; tongue pressed against the upper incisors; frothy liquid in the mouth; abrasions on the knuckles and joints of the left hand.

Inspection forty-five hours after death. Lining membrane of the trachea red; diaphragm arched upwards into the chest; lungs livid, congested with dark fluid blood; reddish frothy

fluid could be pressed out from their air-passages and cells; water in the œsophagus; little or no fluid in the pericardium; subclavian veins, both venæ cavæ, pulmonary veins and right cavities of the heart full of dark fluid blood; very little blood in the left auricle and ventricle.

The scalp was vascular; *dura* and *pia maters* injected; fluid in the ventricles, and base of the skull, in the former situation smelling distinctly of alcohol;* the brain was healthy.

The stomach contained a pulpy mass diluted with water, smelling of spirits; gall-bladder distended; left lobe of the liver hypertrophied; right lobe moderately congested. Nothing farther unusual in the abdomen.

Case 15.—August 2, 1836. J. S. aged 28; two hours immersion; seen three days four hours after death. Pupils dilated; face, neck, and summit of the chest, much swollen and livid; joints flaccid; putrefaction advanced; yellowish fluid containing air-bubbles escaping from the mouth and nostrils; dependent parts of the body livid; trunk warm; lips and nails blue. Accidental.

Case 16. October 29, 1835; 1 P. M.; Joseph Collie, aged 36; eighty hours immersion; seen 80½ hours after death. Face moderately swollen; upper lip thickened; face, head, neck, and upper extremities of a dull-red colour; teeth clenched upon the tip of the tongue; right eyelids contused; right clavicle dislocated at its external extremity; tumour over the left clavicle; right radius, left fore-arm, and right *zygoma* fractured; irregular wound in the left groin, through which a mass of intestines protruded; blisters filled with reddish serum on the front and right side of the chest; the cuticle detached readily from the fore-arms and legs; joints flaccid; the hands and feet had a sodden appearance; the lips livid; the pupils dilated; over the right parietal bone the scalp was raised considerably; reddish fluid escaped from the right nostril. Accidental.

Inspection at 3½ P. M.—Clots of blood under the integuments in the situation of the tumours of the clavicle and scalp; no effused blood in the vicinity of the fractured bones, or dislocation; the edges of the wound in the groin were pale and irregularly torn.

On dissection it was found to extend from above the upper third of Poupart's ligament to the inside of the thigh, about four inches below the crural arch, the lower extremity of the wound only involving the integuments, the upper penetrating through the walls of the abdomen for the extent of an inch; through this the smaller intestine had protruded, with

* In a paper on Intoxication, published in a former number of this Journal, the above case was alluded to; but, by mistake, the name and date of Case 7 were appended.

the exception of the upper half of the *duodenum;* the abdominal walls were sunk inwards.

The tongue was in its natural position; lining membrane of the larynx and trachea dark red; adhesions between the right lung and the adjacent ribs; both limbs expanded; diaphragm depressed; numerous air vesicles in the cellular tissue in the anterior mediastinum; right lung emphysematous, and when pressed frothy mucus escaped from its cut surfaces; left lung congested with dark fluid blood.

An ounce of reddish serum in the pericardium. On slitting it open, the heart was found flaccid, loaded at the base with fat, and of a very great size. The left auricle and ventricle were moistened with dark fluid blood; the cavity of the latter proportionally small, while its walls measured at several points $1\frac{1}{8}$ inches in thickness. The cavity of the right ventricle was much enlarged, while its parietes were, in several places, not more than $\frac{1}{16}$th of an inch in thickness; it contained a little clotted blood. The right auricle was thin, dilated, and empty; no blood in the pulmonary veins and *venæ cavæ;* a little fluid blood in the thoracic aorta.

A thick layer of reddish gelatinous-looking matter was found under the back parts of the scalp; the middle meningeal artery on one side distended with gas, on the other filled with blood; *dura* and *pia mater* minutely injected; sinuses of the head empty; the arachnoid firm, and separated with ease from the *pia mater.* On the right side of the falx, a small portion of adhering lymph; veins running between the convolutions turgid with dark blood; sulci unusually deep, one of which extended downwards $1\frac{7}{8}$ inches; brain firm, a number of bloody points in its interior; ventricles merely moistened; choroid plexus turgid.

The stomach was empty; liver slightly congested; the cavity of the abdomen flooded with dark fluid blood; but time was not allowed to trace the source of the hemorrhage.

Case 17. August 30, 1835; half-past 12, P. M.—Thomas Baxter, aged 54; seven days immersion; seen two hours after the discovery of the body. Head, face, neck, arms, and trunk very much swollen and œdematous; dark fluid blood underneath the eyelids. Inside of both lips torn by the teeth; face, neck, and lips of a dark hue; cornea opaque; upper and fore part of the chest greenish, with the cuticle raised in parts into blisters, containing a greenish fluid; scrotum of a greenish hue, and inflated with gas. The *glans penis* swollen and livid, the prepuce forming a constriction around its base; front of both legs bluish, and without any fulness or mark of contusion. The hands and soles of the feet sodden; sides of the abdomen and insides of the thighs green. Broad blue lines on both arms, in the situation of the cutaneous veins.

Little or no lividity on the posterior part of the trunk. The body had a strong putrid odour. The joints were flaccid.

Inspection at 3 P. M.—The cellular tissue over the neck, chest, and abdomen, crepitous, and softened; its texture broken down, and infiltrated with a thin greenish fluid, or with fetid gas.

Nothing unusual in the mouth, pharynx, or larynx; the trachea empty; its lining membrane of a dark reddish hue; muscles of the chest and abdomen rather soft; cellular tissue of the anterior mediastinum filled with fetid gas, and yellowish fluid; Thirteen ounces of thin red fluid in the left cavity, and eight ounces of a similar fluid in right cavity of the pleura; the diaphragm elevated; the lungs filled the chest, and concealed the pericardium. From their cut surfaces, a moderate quantity of a dark-brown fluid, with a very little frothy mucus, could be expressed; *bronchi* empty; interior red, as far as could be traced.

About half an ounce of reddish fluid in the cavity of the pericardium; heart loaded with fat; coronary vessels distended chiefly with gas, as were all the small veins exposed in the course of the dissection; walls of the right, below, and of the left ventricle, above, the medium thickness; parietes of the right auricle thin; right cavities of the heart merely moistened with dark fluid blood; left auricle and ventricle empty; a moderate quantity of dark clotted blood in both *venæ cavæ*.

A few ounces of red fluid in the abdomen; eight ounces of watery fluid in the stomach; intestines pale, distended with gas; their veins partly injected with fluid blood, partly with gas; liver moderately congested; gall-bladder full of green thin bile; and the pancreas soft. The kidneys were slightly congested; the bladder empty, and contracted.

Remarks.—1. The only phenomena, which were all but universally observed in the above cases were, the dilated pupils, clenched jaws, and semi-contracted fingers and thumbs. This state of the pupil was common to all the cases. The position of the fingers in every instance but one (Case 4) indicated that in these, the hands were convulsively closed during the last struggle, the flexor muscles having but partially relaxed after death. The jaws were firmly fixed, (except in Case 14, where the mouth was open); and this, both before the commencement of rigidity in the joints of the extremities, and after these had become relaxed.

2. The different appearances which the head and face present in different cases have struck most authors as remarkable. "The countenances of many are pale, while there occur cases in which the face is livid, and the head swelled. To explain this difference, M. Desgranges has suggested, that there are distinct modes of death operating in each. One of them he de-

nominates *nervous* or *syncopal asphyxia.*"* "The second is denominated *asphyxia by suffocation.*"* "Dr Marc has added a third to these, asphyxia from cerebral congestion."† A glance at the cases now narrated will show the fallacy of such opinions. The time which the bodies had been in the water is to be considered in each case as close an approximation to the truth as the history of the individual could furnish, and in no instance have we failed to test the accuracy of our information. No interference with the bodies had taken place previous to the inspection, except in Case 12, where the corpse was washed, and laid out, before being submitted to examination.

In the first six cases, seen within six hours and a half after death, the surface was pale when first examined.

In Case 1, the paleness of the face, in a short time, was seen slowly giving place to commencing redness, which deepened gradually in the dependent parts to lividity. In Case 2, the face was at first pale; but in two hours and twenty minutes, lividity had manifested itself on the external ears, back of the head, and trunk. In Case 4, the appearances were totally opposite, at the first and second examinations; at the former, an hour and twenty minutes after death, the surface was pale, while at the latter visit lividity had taken place. A like contrast was manifested in Case 5, between the first and second examinations. Five hours after death, the whole surface was pale twenty-five hours later, the sides of the head were livid; while in other two hours the lividity had extended to the whole of the face. In Case 6, the paleness had, in parts, begun to yield to a slight flush. From Case 7 to 17, inclusive, we find more or less discoloration in all; but the more particular consideration of these we shall defer till afterwards.

3. We were much struck with the marked degree of calmness and placidity of the features, in every instance where the occurrence of swelling had not obliterated all traces of their original expression. In Case 6, indeed, the knitted brows, and the wrinkles at the corners of the eyelids, at once directed attention to the peculiar physiognomy of the near-sighted; and in this person, it was so marked, as to have been noticed at once, though then ignorant of the fact, that the individual in whom it occurred had actually been very short-sighted.

4. "Excoriation at the ends of the fingers, and dirt or sand under the nails,"† have been laid down as frequent marks of death by drowning. These appearances were not met with (though looked for) in any of the above cases.

* Darwell's Beck's Medical Jurisprudence, pp. 292–3. † Beck *loco citato.*

External injuries were noted in Cases 5, 7, 9, 12, 13, 14, 16, and 17, but, with the exception of Case 16, none of these were of a serious nature. In Case 5 these consisted in abrasions of the cuticle over the shin and back of the proximal phalanx of the right fore-finger, and contusions of the one shin and shoulder, the former not noticed till thirty, nor the latter till thirty-two hours after death. In Case 7, ecchymoses were observed in both shins, on the front of the left thigh, on the nates, and back of the right fore-arm; while there was sand on the legs and feet. In Case 9, the integuments of one eyelid, and of one elbow, were abraded, while the anterior perineum, almost to the anus, was lacerated superficially, probably in falling into the water. The woman had, it was supposed, thrown herself from a bridge about ten feet high.

In Case 12, the skin of one eyelid, and of the fore-head and nose was abraded; there was a small wound on one eyelid with contusions of the knuckles, fingers (not at the extremities) and front of both legs. He had gone into a river at a spot where there are numerous rocks, both above and under water, and, though suspicions were at first entertained that this person had suffered violence, the result of the inquiries set on foot justified the supposition of his having committed suicide.

In Case 13, a small irregular wound of the *pinna*, with abrasions on the back of the right hand, and on the front of both knees, were the only injuries detected.

In Case 14, abrasions on the knuckles and fingers were discovered.

In Case 16, the injuries were of a serious nature; but dissection showed distinctly that the graver sort must have been inflicted long after life was extinct,—the contusions of the scalp, and over the left clavicle, only showing the clot of blood under the integuments. In Case 17, the lips were torn by the teeth, probably sometime after death.

5. In Cases 8, 9, and 10, *cutis anserina* was observed on parts of the surface. In the first case the water was frozen at the time of submersion. Case 9 occurred in August, when the temperature of the water could not have been very low; while in case 10, the temperature of the water was little above 32 of Fahr. Possibly the different states of the body at the time of immersion in regard to heat or cold may account for the absence of this phenomenon in some cases, and its presence in others.

6. The peculiar position of the tongue has been invariably noticed in this mode of death. Its tip is usually met with in accurate contact with the incisor teeth, but only in two cases (6 and 16) have we found it included between the closed jaws,

and in both cases, though firmly compressed, it had escaped injury from that cause.

7. Much stress has been laid on the presence of white froth about the lips, or nostrils, or both. In 7 only of the above 16 cases, (viz. Cases 1, 2, 3, 4, 5, 7, and 11,) was it met with, and of these it was only remarked once (in Case 11,) so late as fifteen hours, and in Case 5, probably thirty-two hours after death; while in Case 6 it was not present six hours and a-half, and in Case 8, nine hours and a-half after death. This appearance is not to be confounded with the fluid discharges (often frothy) which are so common in cases of apoplexy, and other instances of death by coma, when putrefaction has commenced, nor with the bloody yellowish or reddish fluids observed in Cases 4, 10, 15, and 16, in the same situation.

8. With regard to the presence of the froth in the cavity of the mouth, the difficulty of forcing open the clenched jaws prevented us from positively determining its presence or absence, in some instances, among these cases where dissection was not permitted, though satisfied that it existed in the majority of the cases in which it was seen about the lips. In the bodies which were opened, we only detected it twice, (Cases 5 and 9;) in the one instance, thirty-two, in the other, forty hours after death. Of seven cases carefully examined, the froth was only thrice (Cases 5, 9, and 10,) met with unequivocally even in the trachea. In Case 12, inspected eighteen hours after death, the appearance was not that which is to be considered characteristic, but rather seemed the natural secretion of the part, mixed with air-bubbles. Nevertheless, it is said to be usually found "in winter after eight or ten days."*

9. It will be observed that, in Case 1, there escaped in jets from the tube in the trachea during expiration, about half an ounce of water, and a much greater quantity in case 2. In both instances the fluid was darted out, and in the case of M'Wattie to a distance of several feet. There were doubts in the first case, whether the fluid had not escaped from the œsophagus into the trachea, by the side of the tube introduced into that canal, but in Case 2, circumstances having rendered it difficult to institute artificial respiration in the usual way, the tube was introduced at once through an opening in the windpipe.

In Case 5, nearly an ounce, and in Case 10, six drachms of water were found in the lower part of the trachea, on the surface of which were two or three large air-bubbles. These facts lead us to suspect that writers on asphyxia have underrated the quantities of water which enter the windpipe, in death by drowning.

10. In the cases which I have given, I found no difficulty

* Beatty, Cycl. of Med. iii. 327.

in deciding on the nature of the white froth found about the lips and nostrils, in the mouth and in the windpipe. I would, however, be cautious in deciding on the nature of the frothy fluid found in all the cases where the lungs were examined, even unfavourable as were the circumstances in Cases 15 and 16. Frothy mucus, in this situation, is so often observed after death from many causes, that it is to be doubted if its presence could be at all relied on in a doubtful case. *

11. The congested state of the lungs, and the state of the heart and large blood-vessels, recognized universally in cases of drowning, are not peculiar to this mode of death, being met with equally in those diseases which terminate by coma. We would merely notice the congestion of the vessels of the head and abdomen in the above dissections, the former having been denied by some of the earlier writers on the subject, and the latter not having been much noticed till lately. The amount of the pulmonary congestion has been much exaggerated, as will appear on reference to the cases.

12. We have only noticed the depression of the diaphragm, so insisted on by authors, in Case 16, in which instance the protrusion of the smaller intestines may account for it.

13. The liquidity of the blood is a circumstance remarked in cases of death by drowning, though its frequent occurrence in death from coma precludes us from giving it any prominent place among the tests of death, from the cause now under consideration. It will be observed, however, that, in Cases 5, 10, 12, 16, 17, coagulated blood was found in the heart, though the great mass of the blood was fluid.

14. Water was observed in the stomach in 5 among the 7 cases examined. In Case 16, its presence was scarcely to be expected. In Cases 9, 10, and 14, its presence was also detected in the œsophagus, while in several cases which were not examined, its escape from the mouth on turning the bodies, or on pressing the abdomen, proved its existence in the stomach or œsophagus.

An attempt has been made by M. Devergie to show in what manner, from the appearances presented by the bodies of the drowned, the time may be determined which has elapsed since submersion; and his deductions, though their value has been called in question by Orfila, have been quoted and commented upon

* The importance of the subject will perhaps justify me in referring to a case of poisoning by laudanum, which occurred to me in May last. During my absence about an hour before death, water, containing sulphuric ether, was incautiously poured over the throat, after the power of deglutition had ceased, and had entered the larynx. At the necroscopic examination, the lining membrane of the trachea was found very red, and a quantity of reddish froth filled up a part of the trachea. Had the body, been found in water, and the history been unknown, a medical jurist from this, and the other appearances, must, in the present state of our knowledge, had no laudanum (which was the case) been found in the stomach, have decided that the deceased had died from drowning.

by late writers in medical jurisprudence. To a person considering the subject, prior to all experience, it would be evident that but little information on this subject could be fairly derived from the appearances of the bodies of the drowned. So many circumstances must be taken into account that no general rule could hold good. It is well known that the progress of putrefaction (which is the foundation of Devergie's test) is influenced by the age of the person, by the nature of the climate, by the temperature of the water, the length of time the body has been in it, the state of the body as regards health or disease at the time of submersion, and also as respects its leanness or *embonpoint*, its temperament, and perhaps other circumstances. The number of bodies which M. D. examined amounted to 45, with which we have only 17, (little more than a third of the number,) to draw a comparison. Not having access to the original paper, I am ignorant of the periods after immersion at which the bodies were examined. To take, however, the most favourable view of the subject, I shall proceed on the supposition that the bodies were seen immediately on their removal from the water, which will necessarily exclude from notice those of the above cases which were not seen for some hours after their discovery. Yet if the test is to be universally relied on, these should offer no disagreement with the rules given by M. Devergie. I shall compare, however, a few of his statements with the result of my own experience.

M. Devergie states* that "no change takes place on the exterior before the fourth or fifth day." A reference to Case 5 to Case 9, inclusive, where the immersion did not extend beyond eight hours, will show the degree of reliance to be placed on this statement. M. D. says, that "about the fourth or fifth day the skin on the palms of the hands begins to whiten; * * on the sixth or eighth day the sole of the foot has acquired a similar tinge."† In Case 16 we find the soles exhibiting the sodden appearance (blanched and wrinkled) after eighty hours immersion, while in Case 9, both palms and soles were so in so short a period as eight hours and a-half.

M. Devergie further adds, "on the fifteenth day the face is slightly swollen and red."‡ In Cases 6, 7, 8, 9, 16, and 17, we find the face swelled more or less, and red in three of them, as also in Case 10, though the time of submersion was only from six hours to seven days. "At the same period (fifteenth day) a greenish spot begins to form on the skin over the middle of the sternum." In Case 17, this appearance was manifest in seven days. In the same person the face was reddish brown, and the scrotum distended with gas, though these changes are not noted by M. De-

* I quote from Dr Beatty's article on "Persons found dead," Cycl. of Med Vol. iii. pp. 328 and 329.

† Beatty, op. citat. ‡ Ibid.

vergie earlier than a month. The occurrence of emphysema of the lungs is fixed as observable at the end of the first month, though, on turning to Case 16, we find one lung in that state in eighty hours. It is probable that this was the cause of the expansion of the lungs in Case 17, though it is not stated in our notes. In Case 5, the emphysema of one lung was perhaps to be strictly considered as the effect of disease. In Case 10, the lungs were unusually dilated and crepitous. "After one month and a-half" says M. D. "the skin on the middle of the abdomen as well as that on the arms, fore-arms, thighs, and legs is still is in a natural state."* In Case 16, we find the cuticle readily detaching from the fore-arms and legs, while in Case 17, the insides of the thighs were green with broad blue lines on both arms, from the escape of blood from the superficial veins, which, like most of the smaller veins, met with in the course of the dissection were empty, thus also contrasting strongly with the statements of M. Devergie.

I had intended to have alluded particularly to the relative value of the signs of death by drowning. But, as this subject is now so well understood, the details which this would require may be saved. I may afterwards forward some tables which I have prepared, contrasting the necroscopic appearances in the drowned with those which are observed in other modes of death from asphyxia, and in sudden death by coma.

Aberdeen, Oct. 15, 1836.

ART. III.—*On the Coagulability of Urine as a Diagnostic and Therapeutic Sign of Dropsies.* By WILLIAM MATEER, M. D. Physician to the Belfast Fever Hospital.

DROPSY being a disease of great frequency, and the cause of much mortality, claims in consequence our careful study and attention. The frequency and mortality of this disorder are points in which the experience of every practitioner agrees. In order, however, that we may not take any thing for granted that is capable of being proved, we shall subjoin a table of the dropsical diseases treated in the Belfast Hospital during the twelve years ending April 1835.

With the disease of	*There were admitted,*			*Of whom there died,*			*Being a ratio of deaths to the recoveries in,*		
	M.	F.	Tot.	M.	F.	Tot.	M.	F.	Tot.
Ascites	58	99	157	29	40	69	1 to 2	1 to $2\frac{1}{8}$	1 to $2\frac{1}{8}$
Anasarca	34	18	71	15	15	30	1 to $2\frac{4}{15}$	1 to $1\frac{1}{2}$	1 to $2\frac{1}{15}$
Hydrothorax	18	4	22	13	2	15	1 to $1\frac{6}{11}$	1 to 2	1 to $1\frac{7}{15}$
Hydrocephalus	7	10	17	6	9	15	1 to $1\frac{1}{6}$	1 to $1\frac{1}{9}$	1 to $1\frac{1}{15}$
Total amount.	117	150	267	63	66	139	1 to $1\frac{54}{57}$	1 to $2\frac{8}{11}$	1 to $1\frac{118}{267}$

* Beatty, op. cit.

The whole number of medical cases, exclusive of fever, admitted during the same period, amounts to 1982; thus making a general ratio of dropsical to the other affections of 1 to $7\frac{1}{2}\frac{1}{8}\frac{5}{7}$. The proportion, however, is in reality much greater, because many, it was found, were admitted with complaints such as *pleuritis*, *hepatitis*, disease of the heart, *rubeola* and *scarlatina*, when dropsy afterwards supervened. Besides, slighter forms of dropsy, such as œdema of the feet and partial anasarca, are very common accompaniments of other disorders. Taking these by a moderate computation at 60, we shall have the dropsical to the other disorders as 1 to 6. The deaths from dropsy are, in proportion to the admissions, more numerous than in almost any other disease. The following table shews the amount and ratio of mortality in the more common kinds of complaints admitted into the Belfast Hospital during the twelve years ending April 1835. A comparison between this and the one already given will show the relative mortality of dropsies.

In the disease of	*Admit.*	*Died.*	*Being a ratio of*	*In the disease of*	*Admit.*	*Died.*	*Being a ratio of*
Asthma,	27	11	1 to $2\frac{1}{7}$	Icterus,	14	5	1 to $2\frac{4}{5}$
Bronchitis,	14	6	1 to $2\frac{1}{3}$	Menorrhagia,	5	0	1 to 0
Catarrh,	15	5	1 to $3\frac{1}{5}$	Mania,	28	3	1 to $9\frac{1}{3}$
Cholera,	96	15	1 to $6\frac{2}{5}$	Neuralgia,	5	1	1 to 5
Dysentery,	170	65	1 to $2\frac{6}{13}$	Obstipatio,	8	3	1 to $2\frac{2}{3}$
Diarrhœa,	47	20	1 to $2\frac{7}{10}$	Pleuritis,	27	2	1 to $13\frac{1}{2}$
Disease of uterus,	51	9	1 to $5\frac{2}{3}$	Pneumonia,	28	16	1 to $1\frac{3}{4}$
Dyspepsia,	54	6	1 to 9	Phthisis pulm.	133	100	1 to $1\frac{33}{100}$
Diabetes,	21	2	1 to $10\frac{1}{2}$	Peritonitis,	6	2	1 to 3
Dysuria,	19	5	1 to $3\frac{4}{5}$	Puerpera,	7	2	1 to $2\frac{1}{2}$
Enteritis,	15	4	1 to $3\frac{3}{4}$	Paralysis	99	17	1 to $5\frac{14}{17}$
Epilepsy,	11	0	1 to 0	Pertussis,	2	1	1 to 3
Disease of heart,	14	5	1 to $2\frac{4}{5}$	Rheumatism,	335	7	1 to $47\frac{8}{7}$
Hysteria,	21	2	1 to $10\frac{1}{2}$	Rubeola,	10	1	1 to 10
Hepatitis,	14	1	1 to $14\frac{2}{3}$	Scarlatina,	40	2	1 to 20
Hæmoptysis,	42	13	1 to $13\frac{3}{13}$	Tetanus,	4	2	1 to 2
Hemiplegia,	28	9	1 to $3\frac{1}{9}$	Variola,	88	15	1 to $5\frac{13}{15}$
Hemorraghia Petechialis,	9	2	1 to $4\frac{1}{2}$	Various,	924	212	1 to $4\frac{74}{212}$
Intermittent, other fevers not included,	14	0	1 to 0				
				Total amount,	1982	541	1 to $3\frac{233}{541}$

The deaths with dropsical cases, admitted as such, amount to 139; being a proportion of 1 to 1 and a fractional part. In the males, the deaths are to the recoveries as 1 to $1\frac{5}{6}\frac{2}{0}$; in the females as 1 to 2. Though females are more susceptible of the disease, with them it proves to be less fatal. The mortality now stated is greater than that found with any other complaint, excepting pulmonary disorders.

From the importance of dropsy, in these respects, the dis-

ease has not failed to meet with proper attention and due inquiry. The greatest step made in attaining to a proper view of its nature, causes and treatment, was the discovery, gradually arrived at, that, in certain states of this affection, the urine is coagulable. Coagulability of urine, while it serves by its presence to distinguish one class of dropsies, by its absence, it affords us a negative character of another and quite distinct variety. Medical writers who have treated on this subject have proved the accuracy of coagulability of urine as a diagnostic sign of certain dropsical affections proceeding from disease of the kidney: its absence, or, in other words, incoagulable urine being characteristic of those originating from a deranged condition of other structures and organs than the kidneys. On this pathognomonic sign, have been founded particular views respecting their proximate causes and treatment. What these views are, we shall afterwards have occasion to explain. At present, we may merely state, that, though coagulability of urine has been made serviceable as a diagnostic symptom for distinguishing between the varieties of dropsy, yet it is capable of still farther extension in this way, and that it enables us to discern other proximate causes of the disease than those referred to by authors, and points out to us a mode of treating such.

Before I enter on an explanation of my views, I shall premise a few of the cases of dropsy which have come under my observation, and which, with others, have served as facts from which the conclusions about to be stated have been deduced. The following cases are classed under three heads. The first six are examples of dropsy originating from a diseased state, for the most part a disorganized one, of the kidneys; where the urine is found to be coagulable, and a cure prognosticated, by a change in this quality of the fluid. Under the second head, I place cases, from the 7th to the 12th inclusive, as illustrating that form of disease arising, not from a deranged state of the kidney, but from that of other organs or structures. The third division comprises all the remaining cases; and these exemplify those kinds of dropsical complaints which proceed from *anæmia* of the kidney, unaccompanied with disorganization of this organ; of which affection, incoagulable urine is also diagnostic.

While the two latter forms now mentioned agree in the incoagulable character of the urine, they differ in this, that, in the former, it remains permanently so, while in the latter, or that arising from renal *anæmia*, this excretion alters in its quality, and becomes distinctly albuminous; when the morbid state is changed to a healthy one, either spontaneously, or by the aid of medicines. Both in principles and practice, the first and third

varieties are directly opposed to one another. To the three classes now adverted to may be referred every species of dropsy; for this disease is never idiopathic, unless the third variety be considered in this light, but merely symptomatic of derangement of some structure or organ throughout the system.

Cases of dropsy, in general, show a great sameness in their symptoms, and in the circumstances which give rise to the complaint. This makes their narration a monotonous task, and they are rarely read with much interest. In default of any interesting particulars on which to ground our selection of cases, or that would claim for them the special notice of the reader, with but two or three exceptions, I have given those that have occurred to me in last year's practice in the Belfast Hospital, as physician to that establishment, and as medical attendant on the external poor.

First Class.

1. Eliza M'Ree, aged 16, was admitted on 9th December. She had been ill, three weeks previously, with scarlatina, from which she had recovered without any bad symptom remaining. The medicines she made use of during her illness were, the *Liquor Acet. Ammoniæ*, and, as purgatives, the *Oleum Ricini* and *Pulv. Rhei*, with calomel. Five days ago she had recovered so far as to be able to leave home, on an errand for her mother; but on returning, she got wetted from rain. Next morning she complained of intense headach, swelling of the abdomen, a sense of constriction at præcordia, and dyspnœa. On the 9th, the day on which she was first visited, the legs and feet were œdematous. The eyes, too, were nearly closed from œdema of the eyelids. She felt, at the loins, in the region of the kidneys, much pain, which was increased on pressure. The urine was scanty, acid, and albuminous.

The remedies ordered were, infusion of digitalis, and a powder composed of two grains of squills, three grains of calomel, and half a drachm of the carbonate of soda; to be taken every third hour. December 10, reported to have become gradually worse since last visit. Died at 10 P. M. same day.

On examination of the body, no trace of serous accumulation was found in the brain; the thoracic viscera were quite healthy; so also were the abdominal, excepting the kidneys. These contained in their pelvis a small quantity of red-coloured serum; their vessels were in a gorged state; their substance softer than natural, of a livid colour, having somewhat the appearance of hepatized lung. Grumous blood was easily pressed from the incised surfaces with the edge of the scalpel. The bladder contained a small quantity of urine, which, on

being heated, became opaque and purulent-like, from the great quantity of albumen contained in it.

2. James Drennan, aged 21, labourer, admitted on the 2d of January, with ascites and hydrocele. He had been wetted twelve months previously, which brought on a rheumatic attack, with which he was for a long time confined, and was relieved by using diaphoretics. He had then been ill eight weeks. By getting up too soon, and resuming his work before his health was re-established, he became affected with his present ailments. The anasarcous swelling commenced in the face, and spread rapidly downwards. Fluctuation in abdomen was distinct; the pulse was 80, full and strong; the urine scanty, turbid, coagulable by means of heat, and slightly reddened litmus paper. Before admission, he had been using cream of tartar in large doses, which it was found brought out a copious papular eruption on the skin.

Bleeding, squills, antimonials, and calomel were used with good effects. The urine, after some time, became of the natural colour and quantity; incoagulable by heat, and only sparingly so on heating with nitric acid and corrosive sublimate. On the 20th of the same month, he left the hospital almost well.

3. N. C., aged 45, became ill on the 15th of March 1835, with dropsical swelling, dyspnœa, and headach, after being exposed to cold. The next day, the swelling notably increasing, she began to fear dropsy, and applied for advice. When visited, she was found to have all the symptoms of this affection. The pulse was 86, full and strong; the bowels confined; urine scanty, passed with difficulty, and strongly albuminous. She had been taking, at the recommendation of some of her friends, cream of tartar in considerable quantities, before applying for advice. This she was directed to omit, and to use instead of it, the infusion of digitalis. This, however, disagreed with her; and the stomach rejected it in whatever shape administered, or however combined with other medicines.

She was then bled *ad animi deliquium*, and locally by leeches to the loins, and directed to make use of a mixture composed of the *Aqua Acet. Ammoniæ*, acetate of potash, and tincture of hyoscyamus. On the 26th, she was much better, and by the 30th, the improvement was found to have been so rapid, that the use of these medicines was discontinued, and some days after she felt sufficiently strong to take airing out of doors.

4. John M'Chesney, aged 24, stone-mason, admitted on 29th April. The dropsy, under which he laboured, followed a severe attack of scarlatina, with which he had been confined in the hospital three weeks ago; but his impatience to return to his work prevented entire recovery. He is reported to be

of rather intemperate habits. About a week after leaving the hospital, at the time he was confined with scarlet fever, he took ill with swelling of the face, which was speedily followed with that of the abdomen. He had slight cough, with dyspnœa and anorexia; urine of regular quantity, strongly coagulable; dull pain of right loin in the region of the kidney, increased on pressure; pulse 78, sharp. Infusion of digitalis, cupping over the right loin, and low diet, were ordered. He was discharged on the 14th of May, cured. Previous to his leaving the hospital the urine was found to be coagulable.

5. John Clarke, aged 48, weaver, admitted with dropsy on the 18th July. Has been ill fourteen months. Illness began with swelling of feet. This swelling has now considerably extended upwards, and pits on pressure. Fluctuation of abdomen perceptible. Other concomitant symptoms of dropsy also present. Of these dyspnœa is the most urgent. Has a slight cough and muco-purulent expectoration,—a complaint of long standing. Pulse 72, soft; urine of natural quantity, and coagulable.

He was ordered the infusion of digitalis, which was continued to be given to him for eight successive days, when it was changed for a mixture, composed of tincture of hyoscyamus, spirits of nitre, nitrate of potash, and the *aqua acet. ammoniae.* The report of his state on the 2d August is, "Favourable change in symptoms. Urine is healthy, quantity less coagulable than formerly. August 6th.—Diuretics were omitted, on account of there being no swelling in any part. Ordered the infusion of gentian. Dismissed on the 11th August in good health."

6. Maria M'Cabe, aged 17, mill-girl, of robust plethoric habit, admitted on the 28th December with general anasarcous swelling over the whole body. She had constant pain of head, a dry tickling cough, dyspnœa, palpitation, and constant sighing, with a sense of oppression and weight over the shoulders. The pulse was 86, strong; and the urine scanty and coagulable. Illness made its appearance three weeks ago, and was caused by a wetting. Digitalis had the first trial, but, after some time, it was left off, from disagreeing with the stomach. Various other diuretics were tried without giving any relief. She was then bled to eighteen ounces from the arm, and locally by leeching. Afterwards she made use of saline draughts, the nitrate and acetate of potash, with relief to symptoms. The urine on testing was found to be less albuminous than before. She was so far recovered in the course of three weeks as to be able to walk through the grounds adjoining the hospital; but in ten days more she relapsed into her former state without any known cause. In

spite of all treatment the disease rapidly proceeded to a fatal issue.

On dissection no morbid appearance was found in the head or chest. Both these cavities and the pericardium contained serum, though not in excess. The kidneys were, however, as we had been led to expect, much disorganized, their substance being dense and cartilaginous-like, when cut into, from the great number of granules or tubercles deposited, chiefly in the cortical portion. Externally these organs were of the natural appearance.

Second Class.

7. Isabella Little, aged 23, admitted on 2d August. This case had been under a physician's care for five weeks before admission; and in that time it was stated, in a report of her case drawn up by her attendant, that "she had made use of *pulv. jalap. compt.*, and also nitrous ether, with the tincture of foxglove, with great uniformity, but without apparently any benefit. Previous to the present attack she was a strong and healthy subject Abdominal fluctuation was very distinct from the first; and the complaint has been a simple ascites until a month ago, when one leg became œdematous, and within ten days more both legs had become the same. She left off taking any medicine whatever since the 30th ult."

On admission, she was found to have all the symptoms common to dropsy; thirst urgent; urine scanty, incoagulable; and the pulse 110, sharp and wiry. She complained, farther, of pain in right side, increased on pressure below margin of the ribs; pain of right shoulder, and bitterness of mouth; and has been occasionally subject to bilious attacks, but they did not injure her health.

Mercury and iodine were the medicines tried in her case, alternately at first, and afterwards combined, from the period of admission till the 20th of the same month. At this time the dropsical symptoms were found not to be so urgent. There was but little thirst, and she complained chiefly of a dry teasing cough. Calomel and squills were then ordered, to be followed with bitter infusions. The urine all this time remained incoagulable. Under the treatment now alluded to, little or no improvement took place; and at the end of other six days she relapsed into her former condition, when the solution of the hydriodate of potash was once more had recourse to, but without any benefit. The dropsical swelling became rapidly larger; and at last, on the 8th December, dyspnœa and other unpleasant symptoms were so urgent, that the operation of tapping was decided upon. A large quantity of fluid came off, which on cooling became gelatinous-like. After the operation diuretics were used; and in a fortnight afterwards she left the hospital

relieved of the dropsy, but still labouring under cough and general debility. The fears entertained at the time of a relapse turned out to be well founded.

8. Sarah Graham, aged 60, mother of one child, admitted, September 19th, with dropsy. This patient was of a stout plethoric habit, but evidently weak and debilitated. Vertigo at all times, but chiefly after exercise of any kind. Ascites a few days before admission was more evident than at present. The feet and legs are also œdematous. Has used for the last few days cream of tartar water, and has felt relieved by it. The pulse was 78, weak; the tongue moist; the bowels costive; and the urine scanty, incoagulable, and slightly alkalescent. Her complaint began about three weeks ago with weakness and debility, but can assign no cause for it. Has been for many years past subject to nervous fits, and to swooning, at any undue exciteement or alarm. Before the dropsy made its appearance, about a fortnight ago, she had several epileptic fits. The first fit came suddenly on her while washing; and, from falling on a stone-floor, she was much bruised, and some of her front teeth were broken. For a week afterwards the fits returned constantly and regularly, with intervals of about twelve hours. They then left her, but she still suffers from vertigo and uneasiness of the head. Fears a return of the paroxysms.

Cream of tartar water, *ad libitum*, a blister to be applied to the nape of the neck, and a cathartic mixture, were ordered.

She made use of the cream of tartar constantly until the 3d October, when the report of this date states, that the dropsical swelling of abdomen and elsewhere had nearly disappeared; that there had been no return of the epilepsy; and that the urine still remained incoagulable by heat. Ordered the infusion of gentian, with the ammoniated tincture of valerian. After a week's use of this mixture, she appeared to be quite restored to health.

9. Joseph Christie, aged 53, admitted February 16th, for the cure of ascites. He had served in India as a soldier for five years; and his sallow wan countenance showed clearly that he had suffered severely from the effects of that climate. He had been several times attacked with symptoms of liver complaint, for which he had been repeatedly bled, blistered, and had setons inserted over the region of the liver. The margin of this organ was felt protruding from beneath the ribs, and extending across towards the left side, and felt hard. Thirst was not urgent; but the appetite was entirely gone; the pulse 78, sharp; and the urine of usual quantity, yellow-coloured, alkalescent, and incoagulable.

As the dropsical symptoms evidently resulted from a dis-

eased state of the liver, the treatment was almost exclusively directed to the relief of this organ. He was cupped, had afterwards blisters applied, the strong mercurial ointment was applied to the blistered surface, and he used internally blue pill, digitalis, and squills. In the course of four months, during which he had made constant use of bitters and alkalies, he found himself free from any hepatic or dropsical affection. At the end of another month, in which he took regularly the solution of the hydriodate of potash, his health was restored to its usual state.

10. Arthur Grimes, aged 60, tobacconist, admitted on the 24th of March, labouring under ascites, complicated with an asthmatic consumption.* He had always enjoyed good health, and never suspected any harm from following his trade. Three months ago, he was attacked with a complaint in the chest of an asthmatic kind. It began after recovering from an attack of pleurisy, which he supposed had been badly managed. He complained mostly of dyspnœa; had slight cough, with purulent expectoration; the legs were œdematous; the pulse 78, strong; the extremities cold; the lips of a livid colour; and the urine scanty, high-coloured, alkalescent, and incoagulable. The crepitating *râle* was distinct in the upper part of chest; he had violent palpitations, to relieve which he kept his hand forcibly pressed to the præcordium; and the bellows' murmur was distinguished by aid of the stethoscope.

He was ordered digitalis, which gave him much relief. Along with this other remedies were administered, so as to vary its mode of exhibition, and to prevent the accumulating effects of this medicine. He was dismissed, as cured, on the 13th April, about three weeks after his admission.

On the 2d of the following month he was re-admitted, in a similar condition, only that the dyspnœa and palpitations were now more urgent. The dyspnœa in two or three days amounted to complete orthopnœa. Countenance bloated; lips of a deep livid colour; and expiration performed with violent heaving of the shoulders and chest, and with puffing of the lip; extremities cold and œdematous; abundant discharge of serum from several erysipelatous blebs, which had come out on the legs. This serum, when examined, was found to be coagulable in a notable degree. Urine scanty, turbid, and incoagulable; abdomen much enlarged from accumulation of the dropsical fluid. Death occurred on the fifth day after his admission.

On inspection after death, no trace of morbid lesion was discoverable, except in the heart, which organ was hypertro-

* This term we do not understand—Editors.

phied, and had its valves ossified. A considerable quantity of serum was contained in the pericardium. The liver, kidneys, and other abdominal viscera were apparently sound.

11. James Hagan, aged 33, weaver, admitted 13th June, with an affection of the liver. The skin was intensely yellow. Other symptoms diagnostic of the disease, for the cure of which he was admitted, were present. By means of the blue pill, followed with purgatives and alkaline bitter infusions, with setons over the region of the liver, he had been nearly freed from any symptoms of hepatic derangement. On the 21st July, the legs and feet were noticed to be œdematous. At this time, and for a week previously, he had been using, in pretty large doses, the hydriodate of potash, in order to counteract any bad effects that might arise from the mercurial course to which he had been subjected. The urine was sparingly coagulable, alkalescent, and of specific gravity 1.046. The infusion of digitalis, with hyoscyamus, was ordered—the other medicines being discontinued. Bitters were afterwards made use of, the urine having become natural in quantity and in quality. Other ailments supervened, of which he was afterwards relieved; and he was dismissed on the 2d of August cured.

12. Ann Hall, aged 23, servant, admitted, with œdema of face and lower extremities, on the 7th September. Fluctuation, though not to a great extent, was also felt in the abdomen. The disorder was ascribed to irregularity in the catamenia. She had dyspnœa, palpitations, and much general debility; anorexia; the pulse 80, weak; and the urine incoagulable and alkaline. The *mistura ferri comp.* and 12 gr. of aloetic pill, on alternate nights, were directed to be taken.

30th. Feels much better as to strength; dropsy, however, continues. Catamenia have not as yet made their appearance. The *mistura ferri comp.* was now discontinued, and the infusion of quassia with carbonate of ammonia directed to be given in its stead. Urine, after some days use of this medicine, was found to be coagulable, and to deposit much earthy sediment. She left the hospital free from every ailment; and, two days previous to this, the catamenia had returned. She now enjoys robust health.

Third Class.

13. John Chalmers, aged 53, gardener, was taken ill from exposure to wetting while following his employment during the spring season of 1832. His health had been hitherto good, and his habits were reported temperate. The complaint began with cough, with but little expectoration; and a little after he noticed swelling of the limbs, which slowly spread up-

wards, so that, at admission, he laboured under cellular dropsy and ascites. The bowels were obstinately costive; and the urine alkalescent, specific gravity 1.020, and incoagulable.

This case occurred in private practice, four years ago; and at first it seemed to resist all remedies employed for the relief of the disease. Almost every diuretic had a trial, sometimes with temporary, but never with permanent relief. The urine was often tested, but it never altered its chemical quality.

In consequence of the long continuance of the disease, and, as from the severe operation of hydragogue medicines, such as elaterium, croton oil, gamboge, the system was much weakened, he was put under a course of bitters, to which was afterwards added the carbonate of ammonia, in the proportion of 3 drachms to 10 ounces of the bitter infusion. Quassia was the bitter mostly made use of. During a fortnight, in which he constantly and regularly made use of these, a rapid improvement took place. Urine became more abundant, and in some measure coagulable. In about three weeks from the time he began to take the bitter mixture with the carbonate of ammonia, he had got rid of every trace of dropsy, recovered his usual strength, and, up to the present time, he has continued to enjoy good health.

14. Sally Ross, aged 35, of pale sickly aspect, mother of four children, admitted on the 1st October, with dropsy. She dated her ailments from November 1835, when she had a smart attack of fever, which had been brought on by cold. After the fever left her, she noticed a swelling of the face and limbs; and after some time the abdomen became tumid. The dropsy, for the last ten months, had remained nearly stationary. The anorexia was less urgent now than formerly. The bowels were regular; the pulse 110, weak and wiry; and the urine scanty, incoagulable by heat.

Infusion of digitalis and the tincture of squills had the first trial; but they were found ineffectual. The infusion of quassia with the carbonate of ammonia were then given, also the solution of supertartrate of potash as drink *ad libitum*; and, after some time, the tincture of cantharides was given in the bitter infusion, in place of the carbonate of ammonia. Ten days' use of this last mixture quite recovered her.

On the 30th Nov. she was free from dropsical or other complaint.

15. Jane Cavan, aged 53, married, admitted 17th October, labouring under anasarca. In addition to anorexia, scanty urine, and other symptoms common to dropsy, she had apparently a slight affection of the liver, as shown by bitterness of mouth, yellowishness of skin, and pain of right shoulder. No pain, however, was felt on pressure over the liver, nor was any enlargement of this viscus perceptible. The dropsical swell-

ing was noticed about six weeks ago, and no cause could be assigned for its appearance. She had a similar attack twelve years ago. The present one is of a more serious nature. The urine is scanty, high-coloured, incoagulable by heat, and alkalescent.

As she had often before been subject to bilious affections, which had come on periodically, an emetic was premised to any specific mode of treatment. This brought off much bilious matter. She was then directed to take cream of tartar and *pulv. jalap. comp.*; and afterwards the former alone, suspended in water. The complaint, by these means, was checked. On October 22d, she was ordered the infusion of calombo and carbonate of ammonia, with aloetic pill, *pro re nata*. She was dismissed cured on the 30th of the same month. There was no change in the albuminous character of the urine.

16. Mary Laughlin, aged 36, married, admitted November 5th, with dropsy. The face and lower extremities were anasarcous. She had slight cough with mucous expectoration, and pain at epigastrium with anorexia. The bowels were regular; the tongue clean; the pulse 76, soft; and the urine alkalescent and incoagulable. The complaint made its appearance four weeks previously; was at service when taken ill, and blames hard working for giving rise to her illness. Medicine from the Dispensary attendant, for a time relieved the disorder. ℞ *Infus. Gentian.* ℥viij. *Tinct. Cardamom. gr.* ℥ss. *Tinct. Rhei* ℥i. *M. et capiat c. magnum 4ter quotidie.* This medicine was persevered in for some time, and proved useful as a stomachic. Dropsy still remaining, she was ordered the decoction of broom with tincture of digitalis.

On the 25th Nov. she was reported to have experienced no relief from the remedies hitherto used. Cream of tartar and sub-borate of soda were given in solution. This latter being an agreeable mixture, and anorexia being urgent, more than the prescribed quantity had been taken. There was, after some time, added to this the infusion of calombo and the carbonate of ammonia. Under this treatment she soon began to experience relief, and on the 20th left the hospital cured.

17. Catherine Sherry, aged 40, cotton-spinner, admitted in dropsy, November 29th. Her illness began two months ago; induced, as she supposed, by cold in the feet while going out in haste to her work bare-footed. Anorexia urgent; urine scanty, of specific gravity 1.040, incoagulable. Anasarcous swelling pretty general; palpitations and dyspnœa urgent after exercise, however moderate. Bowels confined. ℞. *Decoct Spartii Scoparii* ℥x. *Spirit. Æther Nitrosi* ℥ij. *Tinc. Digital.* ℥iij. *M. et ft. mistura, cujus capiat coch. mag. quaque hora.*—℞. *etiam, Pulv. Jalapæ comp.* ℥ss. *S. Tartrat Potass.* ℥ss. *Fiat electuarium, cum syrupo simpl. et sumat statim.*

Without entering into a minute detail of this case, but giving, as I have done in the history of the others, merely an outline of the most important circumstances relating to it, I may briefly state, that these and other diuretic mixtures were used without doing any good; that various other remedies were tried with similar results; and that the most successful was a mixture composed of the infusion of gentian, and the carbonate of ammonia. The urine was observed during its use to become coagulable, and still more so, on adding to it tincture of cantharides, in minute quantities. The albuminous character of the urine became more and more evident, till, at last, when health seemed to be restored, the urine in this respect was of a morbid quality. I had not met with any case in which the effects of general and local stimulants, in giving rise to an albuminous state of the urine, were so evident; nor one where the curative properties of such remedies were so closely connected with this state of the urine.

18. Mary M'Kraith, aged 45, mother of five children, was visited on the 20th of December 1834. This patient, of a pale aspect, and of leucophlegmatic temperament, became ill three days ago with headach, pain of loins, swelling of abdomen, and œdema of feet and legs. She had an attack of dropsy eighteen months ago, since which time she had a severe attack of typhous fever; and she fears that her present ailments will prove as troublesome as her former dropsical complaint, for the cure of which she had been upwards of six months in the hospital. The urine was scanty, high-coloured, and incoagulable; the pulse 100, weak; the tongue clean; and the bowels regular.

She was ordered to take cream of tartar in as large quantities as the stomach would retain. This she continued to do up to the 22d, without interruption, and, as she imagined, with much benefit. Since the time she begun using this, the urine had become albuminous. In addition to the cream of tartar, she now began to use the infusion of calombo, with the bicarbonate of soda dissolved in it. On the 30th, she had nearly recovered her former health. When visited, three days after this, there were found existing symptoms of hepatic disease. This at last terminated in jaundice. During the long period of time that she was confined with this disease, the dropsical symptoms never reappeared. The urine all along had been alkalescent and incoagulable. The unfortunate subject of this case, after getting through the serious disorders by which she had been successively attacked, was taken ill in labour with her sixth child, shortly after recovering from the jaundice, and died from uterine hæmorrhage.

19.—Ellen Lappin, aged 44, admitted on the 25th Septem-

bet, with dropsical symptoms. In addition to these, she seemed also to suffer from derangement of the liver. She had at times slight attacks of jaundice. The skin was of a yellowish hue, and she frequently complained of pain in the right shoulder. Almost every medicine that was administered caused bilious vomitings, after which the swelling was observed to fall in size. The sleep was much disturbed with startings; anorexia; the pulse was 60, weak; and urine pale in colour, incoagulable, sp. gr. 1.026, and of natural quantity.

Purgatives of the milder kind, mercurials, tonics, and diuretics, were each in their turn tried, but without being followed by any permanent relief. The infusion of gentian and the cream of tartar did best. This was afterwards changed to the infusion of quassia, and the tincture of cantharides, with still greater advantage. On the 26th of February, the urine, when tested, was found to be coagulable. Relief to the bilious disorder was coincident with that also of the dropsical symptoms. The tincture of cantharides was used for six days. It was then changed to the oil of turpentine, which was employed with the same design. On the 16th of March, five months from the time of admission, she left the hospital in better health than she had enjoyed for many years.

From the brief statement of the cases now given, it will appear that much use has been made of the coagulability of the urine, both as a diagnostic and a therapeutic sign of dropsies. It is but recently that this property of the urinary excretion came to be applied to such a purpose. Mr Cruickshanks was the first to notice the fact in an essay entitled, "on the manner of distinguishing disease by the urine," published in Tilloch's Magazine for 1803.* Our knowledge of the matter was still farther extended; and the certainty of this state of the urine, as indicative of particular pathological conditions, pointed out by Blackall, M'Lean, Wells, Ayre, Bostock, and Dr Bright. The last mentioned of these writers has brought more research and experience to bear on the subject than any one of his predecessors. His medical reports contain the result of numerous dissections of those cases, chiefly of a dropsical kind, where the urine was found to be albuminous; as also of his experience of their treatment; and from these he has come to the conclusion, that in such there is always more or less of disorganization in the kidneys. These viscera, for the most part, are found to be of a granulated texture, containing depositions of grayish granulated lymph, which oftenest present the form of tubercles. To this disease the name "mottling" has been given.

* Vol. ii. page 240. See also Bostock in Cyclop. of Pract. Med., Article Urine.

The views of Dr Bright have been confirmed by Drs Alison, Christison, and Gregory, as reported, at different times, in the pages of this Journal. * From the frequency with which this newly described disease is found now a days occurring, we feel surprised that it should for so long a time have escaped notice. If there be any thing to which we owe its discovery, it is the investigation into the nature and causes of albuminous secretion. The coagulable state of the urine is found to be an invariable accompaniment of the mottling disease; and some writers even go so far as to say that the extent of this disease, as discovered after death, is found in every instance to be proportionate to the degree of coagulability of urine. † Thus, according to Dr Osborne, the most recent writer on dropsy, when the urine only froths on the application of heat, the kidneys, although gorged with blood, will be found to contain the gray granulated structure, exclusively in the outer portion of the gland; while in cases of complete coagulation, the entire portion of the cortical part will be found superseded by the deposition now mentioned. ‡ We shall afterwards show that this character of the urine arises from, and is diagnostic of, an inflammatory condition of the kidney.

There are various methods of demonstrating the albuminous quality of urine. The first, most simple, but at the same time most efficacious, is exposing to heat the fluid to be examined in a spoon over the flame of a candle. If only a small quantity of albumen be present, the urine will present merely a frothy appearance, and, according to the degree of coagulability, will assume all the shades intermediate between this and the deep opaque colour of that which is highly coagulable. Sometimes the heat is required to be raised to nearly 212°, or the boiling point. The other tests are nitric acid, the bichloride of mercury, ferrocyanate of potash, and creosote. These will sometimes succeed in detecting albumen in a fluid when heat fails to do so. But they are objected to on account of their throwing down, along with the albumen, mucus of the bladder, and a peculiar animal substance named by Berzelius extracto-mucus; both of which latter are in external appearance very like albumen. In applying tests, however, if the first fail us, we ought to have recourse to the others in succession.

It is necessary, at the same time, to take into account, before we determine as to the albuminous character of the fluid submitted to examination, certain circumstances, the existence and influence of which later investigations into this subject have brought to light, and that are found to modify to a great ex-

* Edinburgh Journal, Vols. xxxvi. and xxxvii.
† Craigie's Pathological Anatomy, page 744.
‡ On Dropsy, &c. page 22.

tent the coagulable quality of urine. Dr Burrowes, in his Gulstonian Lectures for 1834, * states, that the urine of dropsical patients is often incoagulable, from its containing too great a quantity of saline ingredients, when, in reality, it contains albumen. He supposes that the use of an abundant quantity of saline substances has the effect of rendering the coagulum contained in the urine soluble: and thus masking it from our notice if heat be the test employed. † We have frequently noticed the same thing, and it would appear to have been noticed previously by other writers. Dr Blackall, in page 64 of his work on Dropsies, when speaking of the complaint following scarlatina, states, that in such cases, the urine contains a great quantity of saline materials, this fluid being at the same time strongly coagulable, and, again, in page 84, remarks, "that the discharge from the kidneys of albuminous matter, might probably be much illustrated by ascertaining whether any saline matters were present, that particularly favoured its solution." ‡

The fact, however, thus brought forward by Dr Burrowes, if not altogether new, is very important, and ought to be kept in view in applying tests to the urine. It shows us the propriety of using different tests; for if heat fail us, in such cases by no means rare, then we may succeed with the chemical reagents already specified. These may cause a precipitate, and do so by uniting chemically with the saline ingredients which serve to render the coagulum soluble, and these being in this way removed, the fluid loses its solvent property. This explains the reason why, in many of the cases related by Dr Bright, where the urine was decidedly albuminous, and where the supertartrate of potash and other saline diureties had been previously used, heat did not detect a coagulum, when the bichloride of mercury and nitric acid did so. It would appear also from the same fact, that albumen in the urine does not necessarily arise from disorganization of the kidneys, as Dr Bright would lead us to suppose; but that it may be caused temporarily and without leaving any permanent effects by using saline medicines.

But the question comes naturally to be asked, what is the proximate cause of albuminous secretion from the kidneys; and what is the condition of these organs in those cases where the urine is coagulable? Our opinion is, that the secretion of albumen is a mere accidental circumstance, and that it is owing to an inflammatory state of the organs: this inflammation being seated in the serous or interstitial cellular tissue, which enters

* Medical Gazette for 1834.

† See also to the same effect Bostock's Physiology, Vol. ii. p. 338. In a more recent publication, Dr Bright alludes to the property which lithates have of masking albumen (Guy's Hospital Reports, No. 2, 1836, p. 342.)

largely into their composition.* The first part of this proposition is confirmed by the views of writers on the subject. Dr Blackall† considers that albuminous urine owes its origin to an inflamed condition of the kidneys, and Dr Ayre‡ is also of this way of thinking. Dr Bright to the same effect remarks, that the altered action of the kidneys, that producing albuminous urine, is the result of the various hurtful causes influencing these through the medium of the stomach and the skin, thus deranging the healthy balance of the circulation, or producing a decidedly inflammatory state of the kidney itself.§ Similar opinions are advanced in the works of Dr M'Lean, Dr Wells, and Dr Osborne.

With regard to the *seat* of that inflammatory affection from which albuminous urine originates, there are proper grounds for believing that it is the cellular interstitial substance composing the substance of the kidney; and that the secretory tissue peculiar to this organ, is not concerned in it. "With respect," says Dr Bostock, "to the formation of albuminous secretions, we have no knowledge of any appropriate organs by which they are secreted, and, as they so exactly resemble the serum of the blood, except in the proportion of their watery and solid constituents, it may be justly questioned, whether they are not formed simply by filtration and transudation.‖ Dr Turner views this matter in a similar light, and supposes, what we have every reason for believing to be the fact, that the coagulable urine is formed by the albumen thus secreted, combining directly with the water, at the moment of being secreted, and at a time when its particles are in a state of minute division.¶ These views of the seat, origin, and mode of formation of albumen in the urine, are confirmed by what we know of the healthy and diseased action of those structures throughout the system, which are analogous to the component tissue of the kidney, which, in such a case, we suppose to be affected. This analogy we shall as briefly as possible point out.

The shut cavity of the kidney is lined by a kind of fibro-serous membranous pouch, which surrounds the various perforations of the *tubuli*, and extends by prolongations or processes, in kind of loose folds to the cortical or glandular part, where every glandula or lesser gland composing the whole mass is surrounded with cellular membrane, in the same way as Mr Kiernan has demonstrated with respect to the liver.** The

* Alison's Physiology. † On Dropsy, page 279.
‡ On Dropsy, passim. § Medical Reports, Vol. i. page 2.
‖ Physiology, Vol. ii. page 338.
¶ Elements of Chemistry, page 860. The same opinion is brought forward by Dr Marcet, Medico-Chirurgical Transactions, Vol. iii. for 1826, page 258.
** Medical Gazette for 1834.

cellular membrane in the kidney, as indeed everywhere else, forms the connecting bond of union of the lesser parts, of which organs or structures are composed, and enters largely into their composition. Cellular membrane forms, as has been somewhere stated, the atmosphere of all the constituents of the animal system. Now it is a law of pathology, that serous membranes, no matter where they may be situated, are liable to take on inflammation, in consequence of irritation, and such inflammation is characterized by the formation of albumen, either condensed, as in layers, or pseudo-membranes, or dissolved in the serum, which, for the most part, is effused after a longer or shorter continuance of the morbid action. Even in the healthy state, the serous exhalants secrete a minute quantity of albumen; but this increases in the ratio of the degree of inflammatory action. * "The surfaces of all the shut cavities," says a writer already quoted, and who has given much attention to this subject, "such as the thorax and abdomen, pericardium, the ventricles of the brain, and even the interstices of the cellular membrane, are constantly secreting a fluid which seems to differ from the serum of the blood, in containing a much smaller quantity of albumen. In the morbid state, these fluids become preternaturally increased in quantity, and contain a great deal of albumen, which may be regarded as what gives them their essential character." †

The analogy of such structures in a state of disease, corroborates the same view of this matter, either in respect to the causes, remote and proximate, which give origin to the albuminous state of the urine, or the condition of the kidneys, as found on *post mortem* inspection. The chief remote causes are diatheses, intemperate habits, or innutritious diet. Of what are termed diatheses, the tubercular is that which mostly prevails. It is the same as the scrofulous, and is distinguished by the formation of tubercles (consisting apparently of condensed albuminous lymph) in the cellular tissue of organs, such as for example, that of the lungs, serous membranes of the brain, the liver, spleen, and, we may add too, in that of the kidneys; for the disease named mottling seems to be neither more nor less than a deposition of grayish granules of condensed lymph in the cellular tissue of these organs. ‡ This disease, therefore, closely resembles the tuberculous state of the lungs.

It has been disputed, whether (as in the case of *phthisis pulmonalis*, for example) inflammation in the cellular tissue precedes or follows the formation of tubercles. Dr Clarke considers that

* Craigie's Path. Anat. page 744.
† Bostock's Physiology, Vol. ii. page 336.
‡ Alison's Outlines of Pathology, page 272.

inflammation does not necessarily precede the formation of tubercles; that these originate for the most part from a tainted constitution, and that they may, and often do, give rise to inflammation in the surrounding parts. This view has also been adopted by other two celebrated writers, Louis and Lombard. It accounts for the circumstance, that in tubercular disease of the lungs, pneumonia is generally throughout the complaint a constant and unvarying symptom. The same, too, holds with respect to the kidneys; inflammation of their cellular tissue, of which the presence of albumen in the urine is diagnostic, being an invariable accompaniment of the disease. But while tubercular deposits may thus be formed in the kidneys, and elsewhere, by an innate tainted habit of body, such formations may, and, for the most part, do, originate from previous inflammation, which has been brought on by irritation of any kind. On this subject we have already adverted to the opinion of Dr Bright; and no point seems to have been better proved, than that substances taken into the stomach, being afterwards carried to one of the main emunctories of the system, viz. the kidneys, may, after a longer or shorter continuance of irritation, produce a tuberculated or other morbid condition of these organs. The mottling disease of the kidneys, or that consisting of the deposition of tubercles, will ensue if the scrofulous diathesis exist. Under other circumstances, however, and if the subject of the disease be healthy, the irritation so caused will give rise, as in other parts, to healthy inflammation, or, if long-continued, derangement of function without any disorganization will follow.

Bad habits of living and innutritious diet have been already mentioned as causes of organic disease. Many substances used in improper diet act specifically on the kidneys, and maintain in these organs a constant state of irritation. The two classes of substances on the diet list that determine most readily to the kidneys are alcoholic or fermented liquors and saline medicines. Spirits, particularly the kind called gin, is but too extensively consumed; and to the use of this and other spirituous drinks Dr Bright attributes the great frequency of the disease under consideration, and of late a reviewer of a paper by this author, in the Reports of Guy's Hospital for the current year, states, that, to the growing evil of intemperance may justly be ascribed our more frequent opportunities of witnessing renal disease.

Saline medicines have the same effect as alcoholic liquors in stimulating the excernents of the kidneys, and thus acting as diu-

* Medico-Chirurg. Review for April 1836.

† Mercury has the same effect. Dr Wells mentions a case (Med. Chirurg. Transact. Vol. iii. 1812) where albuminous urine was suddenly induced by its use. See also Dr Darwall, in Cyclop. of Pract. Med. article *Dropsy*.

retics. Of this kind are sulphate of magnesia, in small doses frequently repeated, magnesia itself, the acetate, super-tartrate and nitrate of potash or of soda, and various others. These form some of our most useful diuretics. We can easily explain their therapeutic action by supposing that, as the kidney forms the only outlet from the system of inorganic substances taken into the stomach, the vital action of these organs will be increased, and that in proportion to the quantity of these materials that may be made use of. "It is chiefly," says Dr Good, "owing to the tendency which the neutral salts have to the kidneys, as their proper emunctory, that they act as diuretics, and carry off dropsical accumulations."* It is therefore important, in a dietetic point of view, that the use of saline articles should be as sparing as possible. Their effects in inducing disease, in this particular way, is one argument, in addition to some others that I have advanced elsewhere,† in proof of the injurious action of common salt on the animal system. This will have the effect, when constantly or excessively used, of inducing a diseased state of the kidney, particularly that form called after its discoverer "Bright's disease." If the subject be of a tainted habit otherwise, however, this and other irritants will merely cause an enfeebled or debilitated state of the organs without any alteration of structure. The action of irritants of this description on the cellular tissue of the kidneys is similar to that of mechanical irritants inhaled into the lungs with certain classes of tradesmen, giving rise to pneumonia.

Another kind of irritating cause, that operates to a great extent in the case of the kidneys, is metastasis. For when the function of any one organ is deranged or suppressed those organs and structures connected with it in morbid sympathy are also irritated and inflamed. In this way we often find dropsy accompanied with albuminous urine produced by suppression of perspiration.‡ Derangement of the cutaneous exhalation from exposure to cold, or from habits of uncleanliness, is a very common source of dropsical complaints. All these and other causes giving rise to inflammation; this is followed by an alteration of organization, either with or without derangement of function. When disorganization occurs we find it in the renal organs, as every where else, either of a healthy kind, or modified by diathesis. The latter kind has been already noticed. The other, however, is often seen. In this case the vessels of the kidneys will be gorged, serum effused into the neighbouring parts, and the great accumulation of fluids, thus brought about,

* Study of Medicine, Vol. iv. p. 462.

† Dublin Medical Journal for September 1833.

‡ On dropsy from suppressed perspiration by Dr Osborne, *passim*. Metastasis in all cases of this kind is aptest to attack the serous textures.

gives the organ a greater bulk and softer consistence than natural. In fact, the kidneys in this case are in an exactly similar state to that of engorgement of the lungs. This kind of disease is exemplified in the case of M'Cabe. This form of engorgement may be considered as the primary state of healthy inflammation in either of these viscera. In the lungs this state is apt to terminate in suppuration. The same too occurs at times in the kidneys, giving rise to purulent matter in the urine. But this is not a common result, for the reason that air has not access to this shut cavity, and the presence of atmospheric air would appear to be essential to the suppurative stage, wherever occurring.*

From what has now been stated respecting the similarity of the pathological condition of serous tissues generally, and that of the kidneys that gives rise to the secretion of albumen, it is evident that coagulable urine results from an affection of a main component tissue of this organ, the cellular membrane, and that such an affection is of an inflammatory character. Leaving, however, for the present, the track of analogy to pursue the safer one of induction from facts, we may advert, in confirmation of the same opinions, to the principles of *treatment* adopted in dropsies where the urine is albuminous. In such cases our plan of treatment is regulated by the supposition, that the disease originates from a local inflammatory state. It is thus we find that the most efficacious mode of treatment is one strictly antiphlogistic; in this sense employing, according to the peculiarities of the case, either bleeding, diaphoretics, antimonials, digitalis, squills and purgatives. Bleeding is by far the most effectual method of reducing inflammatory action. It may be employed either generally or locally, by means of leeching or cupping over the region of the kidneys, should there be any pain felt on pressure over this part. Bleeding may be followed with blisters, and both combined will often prove serviceable. Cases 2d, 3d, 4th, and 6th, exemplify this. Care must be taken to prevent absorption of the cantharides into the system, which would, in addition to the strangury, aggravate the diseased condition of the kidney. At the same time too we may use diaphoretics, which are specially called for in those dropsies originating from suppressed perspiration. According to Dr Osborne's experience, it was found, that, whenever perspiration was brought about either spontaneously or by the aid of medicine, the dropsical symptoms were relieved.†

But of all medicines given for the cure of dropsy, digitalis is,

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* Alison's Outlines of Pathology, page 92. † On Dropsy, &c. page 27.

as Dr Blackall styles it,—" a sovereign remedy."* It is so in virtue of its power of subduing inflammation, particularly when this occurs in a latent form. It is thus useful in those latent inflammatory affections of the kidneys and other internal organs which so often follow tubercular deposits, or exanthematous disorders. When inflammation is more developed and action high, the other remedies succeed better. It is on this principle that digitalis sometimes does good in pulmonary consumption by allaying that latent form of pneumonia which so often follows the deposition of tubercles in the lungs, or that occurs in pale sickly habits. We never employ it with the robust or plethoric, where diseased action is of a sthenic kind; and on this account it is recommended by Dr Withering, Dr Woodville, Dr M'Lean, and others, in administering this medicine, to pay attention to the temperament of the patient. In the plethoric and robust they found it to do harm; in cold, pale, leucophlegmatic subjects it has a better chance of doing good. The benefit derived from antimonials, squills, and purgatives may be accounted for on the same principles, viz. the allaying of irritability and subduing inflammatory action.

In remarking farther and more particularly on the nature and treatment of the renal disorders attended with coagulability of the urine, it is necessary to form some idea of the diagnostic value of this sign, in order fully to comprehend the kind of remedies that are adapted to each of the varieties which it serves to establish. We may first, however, state some of those points on which practical writers have founded their distinction of diseases generally.

Though medical writers now a days are unwilling wholly to assent to the Brunonian " dichotomie;" yet diseases of all kinds are so opposite in their symptoms and treatment, that one grand division into those accompanied with augmented, and into those with a diminished vital action, very generally obtains. While this is admitted by all; pathologists of the present day are led to consider, as of paramount importance to such, a *depraved* condition of parts; and view the *degree* of vital action, as but of secondary importance. To use the words of Andral, " ne sont elles memes que des phenomenes secondaires, que des simples effets. Mais ces effets, inconstans et variables ne suivent pas necessairement l'action de la cause, ils peuvent manquer et cependant les symptomes persisteront encore! Car ils dependent moins de l'etat meme d'hyperemie ou anemie que de la modification organique qui les precéde et qui la cause."† That these states of excited or depressed action are not essential,

* Blackall on Dropsy, page 63. † Clinique Medicale, Tome v. page 217.

appears farther from the fact, that either may exist in a constitution sound and vigorous (sthenic,) or in one of an opposite nature,—one worn down, and exhausted, from whatever cause. And thus we find (to quote the same author from another work) "in every organ two species of hyperemia occurring: the one active, or sthenic, produced by their increased afflux, and accumulation of blood, caused by some irritation; the other, passive or asthenic, the result of the diminished tone of the capillary vessels, which no longer possess the tone requisite for propelling the blood as fast as they receive it. *

Applying the distinction of diseased action thus made to the disorders under consideration, we ought to have hyperemia of the kidney, of which state albuminous urine is, as we have already seen, diagnostic, existing in sthenic as well as asthenic habits; forming in this way two varieties. The general observations already made on the nature, causes, and treatment of dropsy, with albuminous urine, apply in strictness to hyperemia of the sthenic. They hold, too, with the asthenic variety in all particulars, excepting the treatment. Asthenic hyperemia of the kidney is not of so frequent occurrence. It may or may not be accompanied with dropsy. When it is, we are to employ for its cure stimulants, such as the common diuretics with tonics, both general and local. Bicarbonate or borate of soda, cream of tartar, and the *Pulv. Uvae ursi* are serviceable in the latter point of view. As general tonics, the muriated tincture of iron, carbonate and sulphate of iron, quinine, and bitter infusions answer well. The case of Clarke shows the symptoms and treatment of this variety of dropsy. In fatal cases, the kidneys on inspection are foud in a congestive state.

The affection, however, is frequently unaccompanied with dropsy. It would seem then to form the disease called diabetes. Our reasons for believing that diabetes results from asthenic hyperemic action of the kidneys are grounded on the fact, that diabetic urine is always more or less albuminous. † From the pathology of the disease the same thing is evident; for, contrary to the opinions commonly entertained, "the kidneys," says Dr Baillie, "will be found oftenest assuming an inflammatory appearance"; in those at least which fell under his notice this was the case. (Morbid Anatomy, Vol. ii. page 246.) The experience of Rollo and Venables corroborates the same fact; the latter observing, "in all cases a florid inflamed appearance, and a gorged condition of the kidneys, in those who died from diabetes." (Venables on Diabetes, pp. 18,

* Andral's Pathological Anatomy, by Townsend, Vol. i. page 62.

† Dupuytren et Thenard Recherches sur la Diabete, Paris, 1803; also Good's Study of Medicine, Vol. iv. page 463. Prout on Disease of Urinary Organs, page 61.

19.) That this disease occurs in an asthenic frame we have sufficient evidence in what we know of its remote causes, and of the treatment that is found most successful. The causes are whatever debilitate and exhaust the vital powers. The cutaneous exhalation is totally suppressed, as is seen by the dry husky state of the skin, and this causes undue excitement in the vessels of the kidneys, and the secretion of large quantities of fluids which can now have issue only by this outlet. Then again as to the treatment, those remedies succeed best which act as stimulants; that allay irritability, and strengthen the tone of the system. It is on these principles that oxide of bismuth, calombo, quinine, bitters, stimulating doses of opium, and animal food are found useful in this complaint.

As for the objection that may be stated to this view of the proximate cause of diabetes, viz. the supposed inconsistency of increased action in the kidneys taking place to such an extent in an enfeebled state of the system; such would hold good, were the secreted fluid of a healthy character; but, like all morbid secretions, arising from undue irritation or exhaustion, the diabetic urine is abundant in proportion to the exhaustion of the system. Thus profuse discharges of excrementitious matter take place from the mucous membrane of the intestinal canal in the diarrhœa of weak, leucophlegmatic subjects; and in the state of exhaustion from cholera. Thus also there are augmentation of tissues, and hypertrophy of parts following exhaustion, for instance, after severe hemorrhage or bleeding in acute disorders; and to the same cause is owing the obesity or increase of weight which the body acquires, when at an advanced time of life, the powers of vitality begin to ebb.

Following the arrangement of Andral, we are now to notice the state of the kidney, named by this writer *anæmia;* which, though of a directly opposite kind to that we have been speaking of, yet admits of the same subdivisions. While we take it to be that albuminous urine is diagnostic of the hyperemic kinds of renal disease, we believe that it is exclusively so, and that it never occurs to any extent in the species about to be considered. Incoagulability of urine is thus either pathognomonic of health, or it is a negative character of diminished action, whether this take place in the strong, robust, and plethoric, or in a frame of body of an opposite nature. * Sthenic anæmia

* Another important sign drawn from the urine is its *acidulous* or *alkaline* property. It is a fact pretty evident from the cases we have already narrated, that, in acute disease, or those attended with energetic action, this fluid is acid, while, in an opposite condition, it is alkalescent. Berzelius ascribes to the kidney, the function of oxidizing sulphur, phosphorus, nitrogen, and other animal elementary substances. (Med. Chir. Trans. page 258, Vol. iii. for 1826.) If this opinion be a correct one, we might suppose that, in the more vigorous action of this organ, the urine would be

of the kidney is oftener concomitant on other diseases, than an idiopathic affection. We often, however, find it of the latter kind as a cause of dropsy. The symptoms to which it gives rise are scanty incoagulable urine, containing much earthy sediment. This corresponds with one of the varieties described by Blackall. Of this kind are the dropsies found in the higher classes of society, which seem to result from a state of renal anæmia, induced by a long-continued course of previous excitement. The treatment consists in bleeding, followed after some time with tonics and diuretics. We may employ calomel and opium, or opium and camphor, along with, or in place of, bleeding, to allay irritability and lessen the vascularity; which state will allow of the organs being acted on by squills, spirits of nitre, juniper, and other diuretics, which are to follow the use of the sedatives. As such we may also make use of purgatives and antimonials. As this species of dropsy often appears in those subject to gout, we may give with much benefit colchicum; and it is in such cases that this medicine acts as a diuretic. It may be given either alone or conjoined with the other remedies. The same state of the kidneys, though it does not give origin to dropsy, is found accompanying certain stages of fever. In the common fevers of this country, we find, in the primary stages, an excited action every where throughout the system, excepting in some one or more organs which suffer with congestion, owing to previous debility. * So soon as this congestion is removed, the febrile excitement is allayed, and the action of the congested organ and that of the system generally are now reversed. In the stage of excitement little urine is passed off, and that nearly incoagulable. It possesses besides but little earthy matter. By and bye the urine becomes, towards the "turn" of the fever, albuminous; thus showing that the kidneys are called into excited action, and roused from their state of anæmia. At the same time, too, the general febrile exitement is lowered. After the kidneys have for some time secreted albumen, this suddenly disappears, and uric acid and the urate salts are formed in its place, and in this way the *crisis per urinas* is effected.

The dropsy proceeding from *asthenic anæmia* is that to which we would, in particular, direct attention. It arises from diminished action of the renal organs, in a system exhibiting all the signs of general debility. While the variety we have been speaking of

acid, and alkaline when a state of anæmia prevails, on account of the part being unable to completely oxidize all the bases. The acid or alkaline property of urine is attended to by most practical writers, as marking the excited or diminished action; and the circumstance is adduced by Kurt Sprengel, (Handbuch der Pathologie Th. i. § 135;) and other German physiologists in proof of their favourite doctrines regarding the electro-dynamic nature of life.

* On Statistics of Fever, Dublin Med. Journal for September 1836.

exists in the rich and better fed, the present is peculiar to, and of frequent occurrence among, the poorer classes. Out of 1844 cases prescribed for at the Belfast Dispensary, from May 1833 till April 1834, there were found 184 of these affected with dropsy either anasarcous or encysted; and, in default of any organic derangement that could possibly be detected, and from finding the urine in such cases incoagulable, and no sign of inflammatory affection of the kidneys, we were led to regard the dropsical symptoms in most of these as proceeding from anæmia of the kidneys. In these instances we very often found symptoms simulating organic derangement, such as bitterness of mouth, pain of right side, slight cough, want of appetite, flatulence, costiveness, palpitations and fluttering at epigastrium. But these were considered to be merely symptomatic of general debility, and yielded readily to the use of tonics. The asthenic character of these dropsies was evident enough from the history of such cases; their disorder being, for the most part, ascribed to habits of bad living, innutritious diet, cold and fatigue. The complaint in question corresponded to the species of dropsy named by Cullen "anæmia" and "debilium," arising from tenuity of the blood and laxity of the exhalants. The older writers attributed the dropsy of weak subjects to what they termed laxity of exhalants. Writers of the present day, however, are not inclined to give to this a place among the causes of this disease in any shape or form. They refer dropsy as a concomitant affection, either to general inflammation of the system, or to that of the kidneys in particular, or to derangement of organs or parts which cause an impediment to the circulation of the blood, thus mechanically producing serous infiltration. The last of these is no doubt a cause of very extensive operation, and so are the others. It must be confessed, however, that when we find no trace of disorganization so serious as to cause an obstruction to the circulation of the blood (and there are many such cases,*) nor any disorganized state of the kidneys; and when such a disease as renal *anæmia*, unaccompanied with change of structure in the organs, is recognized by practical writers; we are borne out in ascribing the dropsical effusion in many cases to this latter state as the primary affection, for the following reasons.

1*st*, The treatment accords with this view; diuretics of a stimulant nature being of themselves able to carry off the dropsical deposite.

2*dly*, In doing so, they cause an albuminous state of the urine; and this, while it points out the mode of cure, explains, at the same time, the nature of the lesion that had existed.

3*dly*, Because the supposition that the dropsy of weak sub-

* Alison's Pathology, page 297.

jects proceeds from asthenic renal anæmia, would afford a ready way of explaining the nature and causes of this species of disorder. As the office of the kidneys is to excrete earthy matters, urea and serum from the system; if they suffer from anæmia, the urine would become scanty, and the blood, in consequence of its watery portion not being carried off from it by the kidneys, would become more fluid than natural, (a state invariably observed in the kind of cases we have mentioned). All this time, the exhalants throughout the system being at work, the quantity of the water would be increased, and, at last, the capillaries, even though possessing their natural tonicity, would yield to the *vis a tergo* of the circulation of the increased volume of blood, and, in this way, an exit would be forced for the finer or serous particles of this important fluid. Dropsical deposits will thus be formed, in case the absorbents do not act. But supposing that they do act, and suppose farther, as is the case, that, consequent on derangement of the kidney or any other organ, the exhalants opening on membranes, or within cellular tissue, (which are by far the most numerous of any in the system)* secrete more than the natural quantity of serum; this excessive quantity will be carried by means of absorption into the circulation, and, though the usual degree of vital energy be possessed by the kidneys, yet, if this be not excited, so as to keep pace with the increased exhalation and absorption, then exactly the same results will follow as from real *anæmia*. The healthy action of the renal organs, unless it adapts itself to this exigency, may become a morbid one.

4*thly*, This I believe to be the state of the kidney in some kinds of dropsy, because such a diseased state, it is admitted by pathologists, exists. Thus, according to Andral, it is often found in persons who have sunk under chronic diseases. When carried to a high degree, it becomes itself a disease; but it has not as yet been discovered to produce any peculiar derangement of function during life, nor to be attended with any disorganization. It is not, he adds, uncommon in dropsical patients, in whom the kidney is often remarkable for its extreme paleness, and scarcely contains a drop of blood. †

The remote causes of asthenic anæmia of the kidney are previous undue or long-continued excitement, and whatever tends to reduce the vigour and energy of the system. It occurs for this reason mostly among the poor, who are badly fed, and exposed to hardships and fatigue. It is the consequence of bloodletting carried to a great extent; and the œdema and abdominal dropsy following uterine hemorrhage, proceeds from this state

* Craigie, op. cit. page 199.
† Andral's Pathological Anatomy, by Townsend, Vol. ii. page 613.

of the kidney. Of the same kind are the anasarcous swelling of scorbutic subjects.

From these, the *lædentia*, we may infer what are the *juvantia*. The treatment of this variety of dropsy is exemplified by Cases 12, 13, 14, 15, 16, 17, and 18, which are instances of this affection. Our treatment consists in the administration of stimulants, both general and local. Of the latter, the most suitable are saline medicines, for the reasons already stated; and of these the best are the carbonate of ammonia, and the supertartrate of potash. Again, general stimulants, which the tonics may be considered to be, will prove useful, either alone, or, what is better, in combination with saline medicines. Bitter infusions, such as those of quassia, calombo, gentian, with the salts now mentioned, act both as general and local stimulants, and consequently their use on such occasions is indicated. Should the saline medicines disagree with the stomach, as when given in the required quantity, they are apt to do, tincture of cantharides, or the oil of turpentine may be substituted for them. The exhibition of tonics does good, not only by invigorating the system generally, but by their specific effects on the kidneys; for, as Dr A. T. Thomson remarks, "it is chiefly upon the renal and subcutaneous glands, that tonics exert any influence, and these produce no marked action in a state of health, but in disease, they invigorate the kidneys, and secure their ordinary operation. They thus increase the urinary discharge, and by entering the circulation, augment the vitality of the kidneys.* It was in reference to the benefit that bitters afford in such cases of dropsy, that these remedies were formerly accounted diuretic. Dr Cullen, in respect to this opinion states, in his work on Materia Medica, that bitters moderate the exhalation, and strengthen the laxity of the exhalants that give rise to dropsy; and in doing so, *they necessarily cause a great quantity of serum to be carried off by the kidneys.* † In this passage, Dr Cullen refers to an important effect which the bitters give rise to; that, namely, of causing albuminous urine; for in this light we interpret the word "serum," that being the name applied to the coagulum contained in the urine, from its supposed analogy to the serum of the blood. This coincides with our own experience of the matter, having found, that, when bitters have been administered for some length of time, the urine becomes albuminous. This effect is still more likely to ensue, if we administer saline medicines along with the bitters. The use of these brings about a hyperemic action, or, it may be, one merely of the healthy standard, either

* Materia Medica, Vol. i. page 634. To the same effect, also, see Good's Study of Medicine, Vol. iv. page 348.

† Vol. ii. page 69.

of which is necessary, in order that the dropsical fluids may be removed from the system. The albuminous state of the urine, which we have hitherto considered as a *pathological* sign, indicative of inflammatory action in a component tissue of the kidney, becomes, in the latter case, a *therapeutic* one, and denotes that a cure is about taking place. In using saline medicines, nothing is more common than to find, as Dr Burrowes has stated, the urine to become by their means coagulable; and the circumstance of their being, as stated farther by this writer, capable also, when excreted with the urine, of dissolving the coagulum of albumen to which they give rise, has prevented the fact from being sooner noticed.

Another useful medicine in this kind of complaint is iron, either as the carbonate, or the muriated tincture. Given along with the powder of *Arbutus uvae ursi*, they strengthen locally, and they are particularly called for in cases of chlorosis in persons of thin leucophlegmatic temperament, or who have suffered from severe hemorrhage of any kind. In these, the blood, when drawn, is found to differ from that of the healthy, in containing a much greater quantity of water. Mr Hunter spoke of the life of the blood, and in the same sense we might apply to this state, the designation dropsy of blood. This fluid may be as much dropsical as any structure or tissue, that is, it may contain more than the natural portion of water. The effects of iron, when given in these cases, is to improve the quality of the blood, both as respects its consistence and colour. It becomes less fluid and more florid. The way in which it effects this change is by giving strength and tone to the excretory vessels of the kidney, by which these organs are enabled to take away from the circulating mass much of its aqueous portion, thus rendering the blood of thicker consistence, and, if we adopt the theory of Dr Stevens, the saline medicines contained in the serum will produce their colouring effects more intensely, from forming, as they would then do, a more concentrated solution.

Iron preparations, tonics, or saline medicines, will be of no service whatever, in case the excitability of the urinary organs be exhausted, as they will be by the long-continued operation of the exciting causes. For this reason, we but too often fail in relieving dropsy in those who have led a life of intemperance. We have the best chance of doing good by the aid of these medicines, in cases where the debility arises, not from previous undue or long-continued excitement, but from the agency of whatever tends to depress the energies of mind or body; such as care, anxiety, fatigue, innutritious diet, the want of proper air, exercise, clothing, or cleanliness. Sometimes the relief afforded is but temporary. Any benefit which they give to the

diseased symptoms, although it be not permanent, has been found indicated by the appearance of albumen in the urine, and the disappearance of this sign was the signal, as it were, of the return of the former state of *anæmia.*

Such are the principles and treatment of the first and third classes of the varieties of dropsical disease, with the enunciation of which we set out. The second or intermediate class, which is perhaps the most extensive of the three, should now come under notice. But as my object is to treat of those forms of dropsy in which, either in the course of curative treatment, or during the progress of the diseased action, the urine is found to be albuminous, the present does not come directly under our consideration. Dropsical disorders, proceeding from organic affections, other than those of the kidneys, are distinguished by an incoagulable state of the urine. This excretion possesses its healthy qualities, because the renal organs are not deranged. In dropsies, consecutive on organic affections, caused, as is generally imagined, by obstruction in the diseased part to the circulation of the blood, our whole treatment is to be directed to the affected part, as that which is primarily deranged. Cases 7, 8, 9, 10, 11, 12, show the different kinds of dropsy, the organs primarily deranged, and the success attendant on our remedies being directed to the diseased organ, rather than to the dropsy, which is merely a consequence of disease elsewhere. In the cases, Little, Christie, and Hagan, the liver was affected; in Grimes, the heart was the organ primarily deranged; in Hall, the uterus; and with Graham, the dropsy was dependent on epilepsy. When these organic affections were removed by the proper treatment, the consecutive dropsy was also relieved.

ART. IV.—*An Account of Scarlet Fever as it appeared in several of the Charitable Institutions of Edinburgh for the Maintenance and Education of Boys and Girls, during the epidemic of* 1835-36. *Read at the Medico-Chirurgical Society.* By WILLIAM WOOD, F. R. S. E., and F. R. C. S. E.

I FORMERLY laid before the Society a history of Scarlatina, as it appeared in forty-five of the inmates of George Heriot's Hospital during the epidemic of 1832-33; and I, at the same time, brought under the notice of the members, a very interesting account of the same disease, as it affected fifty of the boys of the same institution in the year 1804, published by the late justly celebrated Dr Hamilton. My communication was made,

as I stated at the time, from a belief that it would not be altogether uninteresting to the members to be in possession of a history of the complaint, as it appeared in so many individuals of nearly the same age, placed in the same situation, and under the treatment of the same medical practitioner; and from the conviction of its being of importance towards the extension of our knowledge of diseases, and of their mode of cure, that histories of such complaints as scarlet fever, as they appear in different situations, and in the same situation, after various intervals of time, and during the prevalence of different epidemics, should be put upon record, along with the mode of treatment adopted, and the rate of mortality to which they give rise. By a reference to such records, together with the result of their own personal experience, medical men have an opportunity of judging for themselves, whether diseases undergo, in the lapse of years, any material alteration in their nature and constitution, as has been occasionally asserted, and of forming an opinion as to how far the varieties and modifications of the symptoms which do occur, and the varied rate of mortality which takes place at different times and in different situations, can be accounted for, by any peculiarity in the local situation where the disease appears,—by the season of the year,—by the nature of the weather,—by the state of constitution of the persons affected at the time of the attack,—by the mode of treatment adopted, —or whether they may not be more or less owing to some unknown difference in the state of the contagion at different times, —or to the action of some other general causes, in regard to the existence and effects of which we are still in the dark; and which remain, therefore, interesting, although difficult objects of inquiry.

The same reasons lead me, now, to lay before the Society, an additional communication on the subject of Scarlet Fever; for the purpose of giving a history of that disease, as it has appeared in a number of the boys of George Heriot's Hospital, and of the girls of the Merchants' and Trades' Maiden Hospitals of this city, during the epidemic of 1835-36. I am the more strongly induced to recur to the subject, because the type and character of the fever, in Heriot's Hospital, during the present epidemic, have been considerably different from those which it assumed, either in 1804 or in 1832-33; because, unfortunately, it has proved fatal in a larger proportion of the persons who have been affected with it; and because the deaths have taken place under different circumstances. On the present occasion, I shall avail myself, with pleasure, of the opportunity afforded to me by the kindness of my friends, Mr Johnston, surgeon to John Watson's, and Mr Joseph Bell, surgeon to George Wat-

son's Hospital, of giving an interesting general account of the effects of the fever, in a number of the boys and girls belonging to these institutions; and I have reason to believe that a similar statement in regard to the Orphan Hospital will be brought before the Society at an early period. Already two very able communications on the fever, as it has appeared in Dispensary and in private practice, have been published by Doctors Craigie and Stark, in the Edinburgh Medical and Surgical Journal; and it is to be hoped that additional communications of the same kind will be made to this Society.

In this way, I am happy to think, a great number of facts, in regard to the symptoms, progress, and termination of this truly formidable disease; and to the effects of the various remedies employed for its cure, both in public institutions and in private families, during the present epidemic, will be put upon record; a comparison of which, with those recorded in former epidemics, and with such as may be observed in future times, may eventually lead, it is to be hoped, to some useful general conclusions as to the history of the disease, and its mode of cure.

Some cases of scarlet fever were seen in Edinburgh in July 1835; and I met with it in two families in the New Town in the month of August, but it was not till later in the year that it prevailed to any great extent. Towards the end of autumn, however, and still more during the winter and spring months, it was very generally diffused over the city and neighbourhood, raging in the form of a very widely spread and severe epidemic; attacking, in its course, a great many persons of all ranks and ages, and of both sexes, and proving fatal in a great many instances. It is a remarkable circumstance that the fever extended nearly as rapidly, proved as severe, and was as destructive of life, in the families of the higher ranks, living in large houses, in open airy situations, as in those of the lower, crowded together in small airless dwellings, in narrow streets and lanes. Indeed, I have some reason to think, from accounts I have received from my medical friends, that even a larger proportion of the sufferers from the fever in the higher ranks have fallen a sacrifice to it, than in the lower during this epidemic. The fever became less frequent as the summer advanced, and assumed rather a milder character, but it has continued to prevail to a considerable extent, both in the town and neighbourhood, down to the present time; and it has lately proved fatal, and that very rapidly in some cases. During the existence of the fever in Edinburgh, it has been met with in almost all the towns, and in many parts of the country, both in Scotland and in England; and I am told also in some parts of the continent of Europe, and of America.

George Heriot's Hospital.

Scarlet fever appeared in this institution early in January 1836, and continued to prevail there till the month of March. During the whole of this period the weather was remarkably bad, there being many great and sudden alternations of heat and cold; much rain, hail, and snow, following each other in rapid succession, and frequent severe gales of wind. It reappeared there in November, and at the present time there is one boy in a state of convalescence from an attack of it.

In January 1836, the hospital was in circumstances very similar to those in which it was placed at the time the fever appeared there in 1832. It contained 180 boys, from the age of eight to fourteen; 17 female, and 10 male adults; forming a family of 207 individuals; all in remarkably good health; for although some of the boys had a strong scrofulous diathesis, and had been afflicted with strumous swellings and sores, these had been healed up during the summer and autumnal months by sea-bathing, and a residence at the sea side.

In some respects, circumstances have been more favourable for the treatment of invalids in 1836 than in 1832; because the Governors, after the former epidemic, had fitted up, at my suggestion, an additional sick-room, in the most comfortable style, so that there are now two rooms for the exclusive use of the sick, large, well-heated, and ventilated, each capable of containing more than twelve boys in separate beds. There had also been placed a well-constructed warm bath, in a small room adjoining to, and directly communicating with, each of these sick wards; and, from an early period of the epidemic, water was kept constantly boiling, so that a bath of any required temperature could be had immediately when wanted. There is also another room, capable of containing more than six boys in separate beds, which has been employed, in the first instance, for the reception of the invalids until the nature of their disease is satisfactorily ascertained; and it is afterwards used for the accommodation of the convalescents. In another very important point, too, the invalids, during the present epidemic, have been more favourably situated for the treatment of their complaints, than during the former; as in 1832, in consequence of the advanced age of the late Dr Hamilton, who was then physician to the hospital, I was deprived of his very able and judicious advice, while, in 1836, from Dr Abercrombie having been appointed physician to the institution on the death of Dr Hamilton, I have been able to avail myself of his talents, experience, and kind assistance, in the treatment of the fever, which I have done most freely, in all the cases attended with difficulty, doubt, or danger, with the exception of the first

two fatal ones, in which death took place so rapidly and unexpectedly, that I had no opportunity of calling him into consultation.

Under these circumstances, and looking back to the effects of the fever in 1832–33, I entered upon its treatment in 1836 with some degree of confidence. I very soon, however, had the mortification to find that, on this occasion, I had a much more formidable and intractable disease to deal with than on the former; and, consequently, the discharge of my duty became of the most anxious and laborious kind. I found, by experience, that, "in attributing, (as I did, in my former communication,) at least in some degree, the mildness of the disease, and the smallness of the mortality to the favourable circumstances under which the sick were placed," I had committed an error; not a very uncommon one, I believe, among medical men, in attaching too much importance to these circumstances, and to the remedies employed, and too little to the nature of the epidemic itself, as with the same "means and appliances," with increased and improved accommodation for the sick; with the advantage of Dr Abercrombie's able assistance; with remedies employed on the same general principles, for I was happy to find that the Doctor's views, in regard to the mode of treating the disease, are completely in unison with my own, I have had the melancholy duty of witnessing, on this occasion, the death of four persons out of forty-five, who have been affected with the fever; while in 1832–33, one only of forty-five died, and he of the sequelæ of the disease, being constitutionally predisposed to hydrocephalus.

I would have avoided the error above-mentioned, if I had kept in recollection what has been so well and so truly said on this subject by Dr Fothergill, in the accurate and interesting account he has given of "the putrid sore throat." "In some cases," he says, "this disease appears to be of so mild a nature, and so benign, as to require but little assistance from art: persons even recover from it under the disadvantages of unskilful and injurious management, whilst in others, the progress of the symptoms is so rapid, and the tendency to corruption so strong, that nothing seems able to oppose it. Just as it happens in the small-pox, the benign and distinct sort bears ill treatment without injury; in the malignant flux kind, the utmost art and experience are too often insufficient to conduct the distemper to a happy issue."* Dr Withering, too, thus expresses himself on this subject. "The fact seems to be, that

* The Works of John Fothergill, M. D., 1782, p. 246.

in mild cases, an improper mode of treatment is not highly detrimental; it is only in the more dangerous state of the disease that we can do much harm."

Upon the first appearance of the fever in the hospital, means were used to arrest, if possible, its progress; and had it not been for the failure of similar attempts made in 1804, and in 1832, circumstances seemed so favourable for attaining the object, I would have looked forward, with some degree of confidence, to a successful result. As I dreaded, however, all the means employed, well arranged though they seemed to be, proved fruitless, and the fever spread so rapidly, that in a month from its first appearance in the house, thirty-one of the boys had been attacked with it; in another month five more, and in addition to these cases, Mr Holme, the house governor, in consequence of having been frequently in the sick-rooms, from the anxious interest he took in the invalids, became affected with fever and sore throat, bearing all the characters of scarlatina, although he had been affected with that disease when a boy; and Mrs Stewart, a widow, who had two sons in the institution labouring under the fever, and who was employed there as a sick-nurse, suffered from a similar illness. With the cases, which occurred in November, there were in all forty-five well-marked cases of the fever.

In order to show the rate at which the disease extended, I may state, that one boy was taken ill on January 9th; one on the 11th; one on the 13th; two on the 21st; one on the 22d; one on the 23d; four on the 25th; one on the 26th; three on the 27th; five on the 28th; one on the 29th; four on the 13th; one on the 31st; four on February 1st; one on the 3d; the house governor and nurse on the 4th; one boy on the 23d; one on the 25th; one on the 26th; one on the 29th; one on March 1st; two on November 10th; one on the 13th; two on the 22d; two on the 24th. In all forty-five cases.

The boys, in the early part of the year, came into the sick-room very indiscriminately from the five sleeping wards; but, on the whole, as was to be expected, more of the younger than of the older suffered from the disease. A good many of the bed-fellows of those who took the fever remained free from all complaint, although some of them had not been previously affected with it. Of the seven boys who were taken ill towards the end of the year, four came from the sleeping ward for the younger boys, and all of them had been admitted into the hospital in the month of June, after the fever had left it for a time. Independently of the forty-five cases of fever above alluded to, several of the boys and female servants of the institution suf-

fered from a greater or less degree of sore throat, with slight fever, but these were not reckoned cases of scarlatina, as they did not exhibit any very characteristic marks of that fever; although it is not improbable that, in some of them, the illness was a modification of the disease, produced by exposure to contagion.

Of the forty-five persons who were considered to have passed through the fever in a distinctly marked form on this occasion, thirty-eight were understood not to have had it previously; five to have had it; and no information could be procured with respect to the other two. One only of the boys who had been affected with the disease in the hospital during the epidemic of 1832–33, took it in that of 1835–36, although many of them were still inmates of the house; and it is rather remarkable, that this boy was Daniel Mathieson, mentioned, in my former communication, as having been attacked during his convalescence from well-marked *Scarlatina anginosa*, while still exposed to the contagion in the sick-room, with a renewal of fever and sore throat, attended with a renewed eruption, bearing all the characters of scarlet fever. He happened to be in the sick-room with slight inflammatory sore throat, at the time when the first patient was brought there with the fever in January 1836, was thus exposed to the contagion, and returned to it in the course of about thirteeen or fourteen days, labouring under fever, eruption, and sore throat; but with him, on this occasion, the disease was of a very mild nature.

The fever in the hospital has proved unfortunately to be a very severe one, and four of the boys have fallen a sacrifice to it. In this, as indeed in all epidemics, even in those of the most malignant character, the disease has been mild, in a considerable proportion of the cases, and attended with little or no danger; in others, the symptoms have been alarming, occasionally from an early stage of the complaint, and very little under the control of medical practice.

No case was met with in the hospital during the epidemics of 1804, of 1832–33, or of 1835–36, of the *first variety* of the fever, described by the able and indefatigable Willan under the name of *Scarlatina simplex*; a name applied by him to those cases exclusively in which there is fever with scarlet eruption distinctly marked, but without any affection of the throat.

I may remark, that some confusion has arisen in the descriptions of scarlatina, given by different writers on the subject, from their not having adhered to the use of the same terms, as applicable to the same varieties. Some authors, following Willan, apply the terms *Scarlatina simplex* exclusively to that form of the disease in which there is fever with scarlet eruption,

without any affection of the throat; while others include also under that name, mild cases of the *second variety*, to which Willan applies the terms *Scarlatina anginosa*. There has also arisen some inconvenience from no name having been given to the *fourth variety*, that in which there occur fever and sore throat, without any eruption; produced, however, by exposure to the contagion of scarlatina. To this variety my friend Dr Tweedie, in a very able and interesting article on scarlatina, published in the Cyclopædia of Practical Medicine, has given the name of *Scarlatina faucium*.

From increased personal experience, and from information received from my medical friends, I am induced to adhere to the opinion given in my former communication, "that the existence of true scarlatina without some affection of the throat is a very rare occurrence; and that, upon careful and frequent inspection, it will generally be found to be more or less inflamed." I am not prepared to say that no such form of the disease exists; but I am disposed to think, that an erroneous opinion may have been formed as to the frequency of its occurrence, from the state of the throat having been overlooked by the friends of the invalids, and even, occasionally, by the medical attendants, in consequence of the affection being sometimes so slight, and attended with so little pain, as not to have been mentioned by the patients. In frequent instances I have detected swelling and inflammation; occasionally also, superficial ulceration of the throat, in persons, who, on previous inquiry, would not allow that they had either pain or uneasiness in it. Among the lower orders, indeed, when the fever is of a mild nature, it is no uncommon thing for children to go through the whole primary stages of the disease without observation; and medical advice is only applied for after dropsical symptoms have made their appearance; in consequence, most frequently, of exposure to cold. The dropsical symptoms, too, are very apt to be overlooked when they first occur. It is not improbable that *Roseola*, in which there is no affection of the throat, may in some instances have been mistaken for *scarlatina*, as the eruption in these two diseases is so very similar in appearance, in many cases, that they cannot be satisfactorily distinguished from each other by its appearance alone; so that the presence or absence of swelling and inflammation of the throat is frequently trusted to as a diagnostic mark.

By far the greater number of the cases have belonged to the *second variety* of the fever denominated *scarlatina anginosa*; in which, along with fever and eruption, there are more or less swelling and inflammation, and frequently some degree of ulceration of the throat. One or two of the cases might be referred

to the *third variety*, described under the name of *scarlatina* or *cynanche maligna*; but as the difference between these two varieties, (the *scarlatina anginosa* and *maligna*,) consists almost entirely in a difference in the degree of severity, or malignancy, as it has been called, of the symptoms, a line of distinction cannot be satisfactorily drawn betwixt them; and some cases, which, during the earlier period of the complaint, may be considered as belonging to the one variety, pass into the other. In only one case has there been any degree, and that a slight one, of the foul, fetid, sore of the throat, which is generally an attendant on the fever, in its most malignant form. In all, thirty-five of the patients may be classed under the heads of *scarlatina anginosa* and *maligna*. In ten, the fever has been attended with the symptoms of the *fourth variety*, the *scarlatina faucium*, of Dr Tweedie, under which are included, both cases of the fever, with sore throat, without eruption, in which there had been no previous disease; and also those in which the persons were understood to have been affected with it at some former time. There is no reason to doubt, that the affection, in these last cases, is produced by exposure to the contagion; and it seems to bear the same relation to scarlatina that secondary does to primary small-pox; although it proves, occasionally, as severe a complaint as in its original form; and the same severity has been remarked in some of those cases, in in which the disease appears, for a second time, in its perfect form, of fever, eruption, and sore throat. I have not been able to satisfy myself, whether persons affected with this secondary form of scarlatina, are capable of communicating to others that disease in all its varieties; but I am rather disposed to think so; at all events, there seems no reason to doubt, that they are capable of communicating that kind of sore throat which is generally attended with white specks on the tonsils. Of the thirty-five cases of the fever, belonging to the varieties denominated *scarlatina anginosa* and *scarlatina maligna*, four were said to have been previously affected with the disease, in one form or another; and amongst them one of the boys in whom it proved fatal; thirty were understood not to have previously suffered from it; and in regard to the other, no information could be procured. Of the ten cases of *scarlatina faucium*, two were believed to have been previously affected with it; seven not, and in one it was a matter of doubt. One of the boys, who was attacked with fever, sore throat, and eruption, on the 21st of January, and was reported to be convalescent on the 2d of February, though still confined to the convalescent room, had a renewed attack of sore throat and fever, preceded by cold shivering, on the 9th of that month. There was much redness

and swelling of the tonsils, and one of the submaxillary glands was much enlarged; but there was no eruption. The symptoms of the fever have been, with a few exceptions, the same with those detailed in my former communication; but have been met with indifferent degrees of severity, and in varied combinations, in the different epidemics, and individuals. In general, the fever, in the Hospital, in 1836, has had much more of a typhoid type than in 1832–33; the first stage has been more distinctly marked, and of longer duration; there has been much depression of spirits, with languor, lassitude, and great general uneasiness; total loss of appetite, and nausea, attended occasionally with frequent vomiting; in one of the cases there was early in the disease some degree of diarrhœa; but this was not a common symptom.

In the first stage there have been often also regular fits of cold shivering, the head ached, and the pulse has been frequent, but languid. Sometimes there has been, from the first appearance of the symptoms, a degree of swelling and redness of the throat, with white specks on the tonsils. The vomiting has been frequently continued in the second stage, and in it the pulse has become much quickened, but languid, it has been very seldom under 120 beats in a minute, and often very considerably above that. The eruption, in the cases in which it has been present, has come out rather slowly, and partially over the body at first, and has been, in general, of a less bright-red colour than during the former epidemic. The rash in one of the boys, who died with strongly marked typhoid fever, assumed an appearance which I have always found to indicate a very dangerous state of the disease; it was of rather a pale-red colour on most parts of the body; but there were many large patches of the skin of a purplish or claret colour; and the fingers, wrists, and lower parts of the fore-arm, as well as the toes, feet, and ankles, were tinted of the same colour, giving to the extremities very much the appearance of their having been immersed in a light-coloured infusion of logwood. At the same time, the fingers and toes were swelled; but this was a different affection from the rheumatic swellings which have been frequently met with during the present epidemic, and from the œdematous swellings, so common as sequelæ of the fever. In the boy who was first taken ill, there appeared, on the second day of the disease, along with the general rash, which was at first of a pale-red colour, and only partially diffused, a number of small elevated red papulæ, giving an appearance to the skin very like that which is sometimes met with in the early stages of *small-pox*, when there occurs along with the pustular eruption, a *roseolous* rash. The general appearance, indeed, was so similar in this

case, that it led to some doubt for a day in regard to the real nature of the disease. The heat of the surface of the body, after the reaction, has been generally less than is usual during scarlatina; and there has been a tendency to cold shivering, produced by any part of the surface of the body being exposed to the air. The sleep has been confused, and there has been often delirium, the approach of which was marked, in one or two of the boys, by a peculiar quickness in their movements, and the unnatural rapidity with which they answered questions put to them. In one of the fatal cases the delirium was of a violent kind, and the patient was disposed not only to leave his bed, but also to strike the friends who were in attendance on him. The breathing has been generally quick, and attended, in some of the severe cases, with frequent short sighs. In all the patients the throat has been more or less affected. The inflammation has been generally of a dark-red colour, with white specks; and it has sometimes extended downwards along the pharynx, and even in all probability affected the œsophagus, and upwards to the roof of the mouth, into the cavities of the nose, and also into the ear by the Eustachian tube. In many cases there has been ulceration of the tonsils, more or less deep; but in none has there been any extensive sloughing. A quantity of tough dirty-white mucus has been generally accumulated on the back part of the fauces, and in the neighbourhood of the glottis, producing much painful irritation, and troublesome short cough. The tongue has been commonly moist, and loaded, with red papillæ projecting through a brownish-yellow crust, and it has been red and tender along its margins; sometimes it has been of a dark-red or purplish colour, but clean, occasionally glossy; and in some cases, towards the end of the fever, it has become superficially ulcerated. The mucous membrane lining the nose and eyelids was inflamed in one or two of the cases, and discharged an acrid fluid, which produced ulceration of the lips and surrounding parts. Some of the cervical glands were generally more or less enlarged, and painful to the touch. The recovery of the invalids has been commonly slow. In some cases in the course of the present epidemic, as in that of 1804 and 1832, the pulse has been found, for many successive days, during the period of convalescence, considerably slower than natural, when the patients seemed in all respects well. This happened at a time when they were still confined to bed, and were living almost entirely on milk and vegetable food.

Such have been the symptoms of the fever in the hospital during the present epidemic, and these have been met with in very different degrees of severity, and in various combinations, in the different cases. Four of the forty-five patients have died; three

of them from the *primary* and *direct effects* of the fever, and one from its *indirect* and *secondary* consequences. I shall afterwards give a full account of these cases; but I may here mention, that one of the boys died unexpectedly, in little more than forty-eight hours from the first attack, without the occurrence of any symptoms of malignancy, or indication of danger, or without any appearances having been discovered on dissection to explain the cause of death. Another expired in little more than thirty-six hours, in exactly similar circumstances. In both these cases the symptoms were those of *scarlatina anginosa*, and a state of collapse took place very soon after the disease commenced. In a third, the fever lasted till the seventh day, when the boy sunk, after having suffered from all the symptoms of the disease, in its most *malignant* form, with the exception of there having been no very severe or serious affection of the throat. The fever partook in him, very strongly, of the typhoid type; the general eruption was rather pale, and there were large patches of the skin of a light claret colour; the extremities had a uniform tint of the same colour, and the fingers and toes were swelled. There was much delirium, occasionally of a violent nature, and requiring the use of a strait jacket; the eyes were red. In the fourth fatal case, the symptoms were those of severe *scarlatina anginosa;* for although there was much fever, with great restlessness, general uneasiness and delirium, there was not that appearance of the eruption and of the throat which is generally supposed to mark the *scarlatina maligna.* The boy was ill for thirty-three days, during which he was occasionally better and worse, and his death seemed to be caused by a diseased state of the bronchial and mesenteric glands, with probably some organic derangement of the parts in the vicinity of the glottis, as we were led to suppose, from the nature of the cough, which was a very painful and distressing symptom; but we had no opportunity of ascertaining the accuracy or inaccuracy of this opinion, as leave to inspect the body was refused by the friends.

The principal *indirect*, or *secondary affections*, produced by the fever, have been *dropsical effusions* in various parts of the body, and *rheumatic affections* of the *joints*, which have been unusually frequent during the present epidemic. There has been no suppuration of the external glands in any of the patients, and of the ear in one only; and it was a very slight affection, and gave little trouble.

In eight of the forty-five cases, more or less œdema has been observed; in five of them, it was unattended with any disagreeable effects; but in three, there were severe and strongly marked symptoms of affection of the head and chest. In none of

the eight cases has the fever been very severe in its primary stages; in most of them it has been mild, and in all there has been a distinctly marked eruption. In none of the seven boys who were affected with the fever in the months of November and December was it followed by dropsical effusions. The œdema appeared some time after the fever had subsided, and while the patients were considered to be convalescent. It has been occasionally observed in the face alone, and when it affected the hands and feet, as was the case in one of the patients, it began in the face, took place next in the hands, and then in the feet. The average period from the commencement of the disease, at which the dropsical symptoms came on, in the eight cases, was nineteen days, the earliest being seventeen, and the latest twenty-two; and, in this respect, there is a remarkable coincidence with what was observed in the nine boys who suffered from the same affection in the hospital in 1832–33.*

In all the dropsical cases, the urine was coagulable, to a greater or less extent, by the application of heat, and it was of a less specific gravity than usual. This was satisfactorily ascertained by many trials made by my friend Professor Christison, who took an anxious interest in the investigation. The coagulable urine was unnatural in colour, occasionally resembling whey, and its appearance was generally so peculiar, that it was easy to prognosticate, from that alone, whether it would or would not be found to be coagulable. In some of the patients, it was of a red colour, from a mixture of blood, very much resembling water in which meat had been washed; and it went through various shades of red and brown, before it assumed a healthy appearance. During the presence of œdema, the urine was small in quantity, and in one case, the secretion seemed to be nearly suspended for a short time. The diminished specific gravity and coagulability of the urine remained in one of the boys for a considerable time after the dropsical symptoms had disappeared, when he seemed to be totally free from disease, and was engaged in his usual avocations. In some cases the œdema was evidently caused by imprudent exposure to cold; and more particularly to a current of cold air, during the period of convalescence. In one, it was brought on by a window of the convalescent room having been opened, for a very short time, by one of the boys, for the purpose of speaking to a companion on the outside of the house. In other instances, however, it came

* Its first appearance, according to Dr Wells, "is generally on the twenty-second or twenty-third day after the commencement of the preceding fever;" and he adds, "it may come on as early as the sixteenth day. . . . . and its attack may be delayed to the twenty-fifth."—Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, Vol. iii. p. 168.

on before the patients had been allowed to leave their beds; and when the most unremitting attention had been paid by the nurses to prevent any improper exposure. The dropsical affections had all the characters of that disease in its *acute* form; the swellings were more elastic to the touch, and pitted much less on pressure than in cases where they arise from debility, and are the effects of organic derangement of the internal viscera. In the five patients, in whom there were no unpleasant symptoms connected with the dropsical swellings, these were observed in the face alone. In two, in whom there were symptoms of affection of internal parts, they were also confined to the face; but in the third, they appeared in the face, hands, and feet in succession. The symptoms of affection of the head and chest were very similar to those produced by effusion of serum or other fluids into these cavities; but it is difficult to suppose, that any considerable quantity of fluid had actually been effused into them, considering the great rapidity with which the symptoms were removed by general blood-letting and other powerful remedies. Sometimes previously to the appearance of the œdema, the pulse was observed to be slower than natural, and continued so for a time; but in all the cases in which symptoms indicating an affection of the head and chest were connected with the œdematous state, there was more or less general febrile excitement, and the pulse was occasionally remarkably frequent; with the heart beating tumultuously; the symptoms seldom came on till several days after the œdema had appeared, and then, sometimes, very suddenly, and with great violence.* I am happy to say, that none of the patients in the hospital have died of this affection during the present epidemic, though several of them have been in considerable danger, and have required active treatment for the removal of their complaints. A great difference of opinion has existed among writers on scarlatina, in regard to the degree of importance to be attached to these dropsical affections; by some they are considered to be of very little consequence, while, by others, they are said to be attended with even more danger than the fever itself in its primary stages. This difference of opinion seems to me to have arisen from the different nature of different epidemics, and from the different modes of treatment which have been employed, particularly for the removal of the dropsical affections. The comparative degree of danger from the primary fever and its secondary effects in different epidemics, is well illustrated by the histories of the disease, as it appeared in Heriot's Hospital in 1804, 1832, and 1836. In the epidemics of 1804 and 1832-

* On this subject Dr Wells says, "Symptoms of extreme danger sometimes appear as early as the third day after the face has begun to swell."—(*Loco citato.*)

38, none of the patients died of its *primary effects*; while in that of the first, three; and of the second, one died of the *dropsical affections*. In the epidemic of 1836, three died of its *immediate effects*, and one of the *more remote*; but none with *dropsical symptoms*.

At all events, the period during which œdematous swellings are present, should invariably be considered as one of danger, requiring the most watchful care of the medical attendant, as alarming symptoms frequently appear very suddenly; for the removal of which, the most active treatment is essentially required, and without loss of time; and, fortunately, in no stage of the disease are powerful remedies more decidedly useful. The cases in which symptoms were produced by the dropsical affections, or, perhaps, I should rather say, by the state of the constitution giving rise to them, seem to me to be of sufficient importance to be given in detail; in the meantime I may state, that one of the boys, in whom an œdematous swelling of the face was observed on the 20th day from the commencement of the fever, complained suddenly, on the 25th day, of very violent pain in the forehead; he was at the same moment totally deprived of his eye-sight, and the pupils of the eyes became very much dilated. His urine had been previously of a dark-red colour, and coagulable; and his pulse had been for a few days rather below the natural standard, but he had not complained of any thing. After a few minutes the pain of the head went suddenly off, and his vision was immediately restored. I was informed by one of my sons, who happened to be in the sick-room at the time of this singular affection, that, just before he recovered his sight, the iris of both eyes was, for a short time, in a state of rapid dilatation and contraction. Blood, which was immediately taken from the arm, was much cupped, and had a thick buffy coat; an additional quantity drawn some hours afterwards was of natural appearance. This patient made a perfect recovery without any other severe symptoms having taken place.

In another of the boys, slight œdema of the face appeared on the 20th day of the fever, while he was still confined to bed. On the 25th, there was some œdema also of the hands, and the pulse was 100. Medicines were given for the removal of these symptoms, and on the morning of the 27th day, the swelling of the hand was reported to have disappeared; that of the face to be much lessened, and the pulse was 94. Soon after this report had been made, he had a severe and long-continued fit of cold shivering, which was removed by the warm bath; but immediately afterwards he became extremely hot, and his face was much flushed. He vomited, and complained of great pain in his head; the breathing was quick, short, and oppressed, and

the heart beat tumultuously; the pulse was too rapid to be easily counted. These unpleasant symptoms were considerably relieved by blood being drawn freely from the arm, and by purgative medicines. In the evening, however, he was still hot and feverish, and the breathing was quick and oppressed. He was again bled with great relief, and next day he was in all respects better; he had slept well; looked comfortable; his breathing was much more natural, and his pulse was less frequent. After some time his feet swelled considerably; he was plagued with a troublesome cough, and became affected with severe rheumatic pains in his joints; but he recovered perfectly, though slowly.

Four of the boys who had the fever early in the year, and Mrs Stewart, the nurse, suffered from painful *rheumatic affections*, principally of the smaller joints, as sequelæ of the fever. None of the patients who were taken ill in November and December had any attack of this sequela. Mrs Stewart, who had laboured under *scarlatina faucium*, was attacked during her convalescence with long-continued and very painful lumbago. The four boys had been affected with *scarlatina anginosa*, and two of them in a very severe form; in these two, there were rheumatic pains of the extremities generally, without any appearance of swelling or of external inflammation; in one of them they commenced on the third, and in the other on the fifth day of the fever, in both during the presence of the eruption. In the third boy, the ankles were affected, and although there was neither swelling nor inflammation of them, the pain was much increased on their being touched, or on motion; this affection came on very late in the disease, and after dropsical symptoms, which had been both troublesome and tedious, had been removed. In the fifth case, the rheumatic affection assumed rather a remarkable character; the boy complained, on the seventh day after being attacked with the fever in the form of *scarlatina anginosa*, during the existence of desquamation of the skin, of very severe pains in the legs and arms; on the eleventh day there was much painful swelling of the fingers; on the twenty-second, œdema of the face appeared, with pain in the head; on the twenty-ninth, there was a renewal of the pain in the head, and there were symptoms of affection of the chest, both of which were removed by blood-letting and other remedies; on the thirty-eighth there was much pain in the hands, and in both hams, so much, indeed, as to prevent him moving easily in bed, and much increased by the slightest touch of the parts affected, which were a little swelled, but not red. On the fortieth day he complained of toothache, and severe rheumatic pain over the right eyebrow.

On the fifty-third day, there was a great deal of pain in the left ankle and knee, which was much swelled. After the decline of these symptoms by the use of leeches, sinapisms, and blisters, he complained of great pain in the upper and fore part of the left thigh, and the slightest touch was insufferable; he was for a long time confined to bed. For some time after the pain had so far subsided as to allow of his being taken up, he was unable to make any use of the left leg in walking, partly from pain, but principally from a want of power and command of the limb. He could not rest any weight upon it, and when it was moved, it shook in a singular way; altogether, the mode in which the limb was used was very similar to that produced by paralysis. This affection remained for many months, although he was in the enjoyment of good general health, and it went off slowly and gradually, during a residence at the sea side, and the use of sea bathing. He is at present in good health, and has regained the perfect use of his limbs.

Two of the boys who had been affected with *Scarlatina anginosa* in rather a mild form, suffered from an attack of *pneumonia* after their recovery. One of them, who had had some degree of œdema of the face without any unpleasant symptoms, was attacked with pneumonia eleven days after he had returned to his own sleeping ward, and been engaged in his usual avocations, and above seven weeks from the commencement of the fever. In the other, the inflammation of the lungs took place above a month from his having left the convalescent room, and above two months from the first symptoms of the fever.

It is a very remarkable circumstance, and one not easily accounted for, that a boy was attacked with *small-pox* while in the convalescent room, to which, and to the sick-room, he had been confined for above a month, in consequence of having been affected with *scarlatina faucium*. On the 29th of February, more than a month from the commencement of the fever, he complained of pain at the under part of the sternum, and was affected with a severe fit of cold shivering, for which he was put in the warm bath; soon after his removal from the bath the shivering was renewed; afterwards he became very hot, and his skin was covered with perspiration; the face was flushed; the pulse 150; the heart beating tumultuously. These symptoms so strongly resembled those I had seen a short time before in one of the boys, from an affection of the chest connected with the dropsical state, that I considered this illness as being of the same nature, although no œdema could be discovered. He was bled freely at the arm, and strong purgative medicines were given.

On the 1st March, he was rather better; the pulse 120;

some more blood was taken, which, in both instances, exhibited a thick buffy coat. On the 2d, a dark-red eruption appeared on some parts of the skin, and there was an immense number of small dark-red papulæ generally diffused over the body and extremities, which assumed, next day, a decidedly *varioloid* character, and the *roseolous* rash then disappeared. From this time, the disease was attended with all the symptoms of ordinary small-pox; the pustules were very numerous on the face, back, and extremities, but less so on the chest and abdomen. As the complaint advanced, the face became very much swelled, there was great quickness of the pulse, with much delirium and restlessness. The pustules had run together on the face. Until the eighth day of the eruption, there was no appearance of there being any modification of the complaint by the previous vaccination, as in all respects, the disease, up to that period, might be considered as a tolerably severe case of *natural small-pox*. From the eighth day, however, the pustules, which were then large, and full of white thick matter, crusted over quickly, and disappeared rapidly, without the occurrence of any degree of secondary fever,—distinctly pointing out the advantage derived from the previous vaccination.

On the 22d March, another boy; on the 31st, a third; and on the 18th April, two more were attacked with *modified small-pox;* the last of these only had been affected with scarlet fever. In all of them the disease was of a very slight nature. In none of the patients, during the prevalence of the present epidemic, has there been any *erysipelatous affection*, as had been the case during the former.

The *treatment* of the *fever* in the hospital, during the present epidemic, has been conducted on the same general principles as during the former. There has been no disinclination on the part of Dr Abercrombie, and myself, to employ general blood-letting, during the primary stages; wherever its use seems to be indicated by great febrile excitement; or by the occurrence of symptoms marking some local affection; but, on the other hand, we have not been disposed to have recourse to it, as a general remedy, from any belief of scarlet fever, partaking always, or most frequently, so much of an inflammatory nature, as to render its employment necessary, without some special indication. In consequence of the sudden death of two of the boys, in a state of collapse, soon after the fever appeared in the hospital, and of the disease having assumed much of the typhoid type, we considered it improper, and unnecessary to use the lancet, in the primary stages of the fever, in any but the first case which occurred. Local blooding by leeches has been frequently employed for the removal of local symptoms.

Emetics have been very little used, in consequence of the languor, lassitude, and general depression of the patient, in the commencement of the disease. Purgative and laxative medicines have been given freely, and frequently, in all its stages. The tartrate of antimony has been much less employed, with the view of producing nausea, than on the former occasion; because the febrile excitement has been less; it has been frequently given, however, as a diaphoretic, in combination with other medicines of the same class. Sponging with cold water has not been at all used; and with tepid, only in particular cases, and in them cautiously, in consequence of the heat of surface of the patients having been, in general, little above the natural standard, and of there having been a tendency to cold shivering, produced by exposure of the body to the air.

The warm bath has been very frequently employed, in all stages of the disease, and with the best effects. It shortened the duration of the cold stage, and hastened the appearance of the eruption; in the febrile state, it allayed febrile excitement, and tended to produce sleep; and, during the period of desquamation, it relieved the unpleasant irritation produced by the affection of the skin, and assisted in restoring it to a healthy state. The temperature of the bath was regulated by the heat of surface of the patient. I am disposed to think, that sufficient importance has not been attached to the warm bath, as a remedial measure, in scarlatina; and that it has not been hitherto used so generally, nor repeated so frequently, as it ought to be. I hope it will not be inferred, from this statement in favour of the warm and tepid bath, in certain states of the fever, that I am disposed to undervalue the practice of sponging the surface of the body with cold, or with tepid water; a practice from which the most beneficial results have been obtained, under judicious management; but this practice has not seemed a desirable one, as a general remedy, during the present epidemic, from the want of a high temperature of the surface of the body. In all instances, where the patients could be placed in the bath, without much disturbance, it was extremely pleasant to their feelings, and it was often asked to be repeated.

Tincture of opium, in combination with antimonial wine, has sometimes been given, during the stage of desquamation, after the febrile state has subsided, with a view of relieving the uneasy irritation produced by the state of the skin, which is frequently so distressing as to deprive the patient of sleep.

In the management of the local affection of the throat, leeches have occasionally been applied, where there was much inflammatory swelling of the tonsils, and where any of the external glands were enlarged, and painful. Blisters have been occasionally used in swellings of the submaxillary or cervical glands, after the de-

cline of the fever; but not often, during the febrile state, as they add to the discomfort of the patient, and do not seem to produce much effect in lessening the internal affection of the throat. Infusion of roses, acidulated with the sulphuric or nitric acid, and occasionally with an admixture of the tincture of capsicum, has been much used as a gargle. In many cases, where there was a great disinclination, on the part of the boys, to the use of gargles, they were persuaded, as a substitute, to sip frequently tea-spoonfuls of common syrup, made pleasantly acid by addition of diluted nitrous acid. The strength of this mixture was varied according to circumstances; in some cases it produced considerable pain in being swallowed, by a person affected with sore throat, when it hardly tasted acid to one without such affection. In all cases where there was an accumulation of mucus in the mouth and throat, it was removed, as much as possible, with a sponge, and by frequent washing with tepid milk and water. Upon the whole, I am disposed to think, that too much importance has occasionally been attached in scarlet fever, to the state of the throat, and to the applications made to it. No doubt, in some cases, where there has been extensive sloughing of the throat, and neighbouring parts, death has been caused by the local affection; but more generally, I believe, the death is to be ascribed to the kind and degree of the general fever, by which the state of the throat is regulated, and consequently the cure of the local affection must depend, in a great measure, on the treatment of the fever itself.

Wine and other cordials were considered necessary in only a few cases; and in them they were given with great caution. When wine was used, it was given, at first, at least, diluted with water, and only in table-spoonfuls at a time, till its effects, which were very carefully watched, were ascertained; and by these its future use was regulated. Not more than six or seven of the patients, in all, had any wine or other cordial given to them in any stages of the fever, or during their convalescence.

A strictly antiphlogistic regimen was followed during the whole period of the febrile state, and for some time afterwards, and even when food of a more nourishing kind was allowed during the convalescence, it was given sparingly and cautiously, from a fear of febrile excitement being produced, not unlikely to terminate in dropsical affections. And for the same reason, the greatest care was taken to prevent the patients from being exposed to cold air for many weeks after the fever had subsided.

In the treatment of the *dropsical affections* which followed the fever, the remedies have been varied according to the extent of the œdema, and the nature of the symptoms with which it was accompanied. In the cases where the œdema was partial, and confined to the face, without any fever, or symptoms

of affection of internal parts, active purgative medicines were given, followed by diuretics, of which digitalis was the one principally trusted to, on account of its effect in lessening the force of the circulation; and the warm bath was employed, with a strictly antiphlogistic regimen. Under this treatment, the œdema generally disappeared, without producing any unpleasant effect. In all cases, however, where, along with œdematous effusion, there was febrile excitement, and more particularly where symptoms appeared indicative of an affection of any of the internal parts, and in our patients those of the head and chest were alone affected, general blood-letting was immediately had recourse to, and repeated at short intervals till relief was obtained. The rapidity with which symptoms the most severe, and of the most alarming kind, disappeared under this remedy was very remarkable. In no case, during the present epidemic, have convulsion fits occurred either in the primary or secondary stages, as was the case in several instances during the last. It is satisfactory to know that recovery often takes place, under the use of blood-letting, of patients who have been affected with very severe convulsive fits. Along with blood-letting, active purgatives have been employed. The warm bath has been repeated frequently, and diuretic medicines, and occasionally tartrate of antimony, have been administered.

Nothing seems to be better established, in the history of scarlatina, than the fact, that the dropsical affections which so frequently follow it, are, in all cases, more or less of the *acute* species, requiring, in many instances, the most powerful antiphlogistic remedies for their removal; and no greater improvement has been made in the treatment of the fever and its consequences, than that of the early and free use of the lancet in the dropsical affections. For this change we are in a great measure indebted to Drs Abercrombie, Bright, Christison, and other medical men of the present times, who have thrown much light, in their writings, on the nature and cure of *acute dropsies* in general, and of the dropsical affections occurring as sequelæ of scarlatina in particular. But it ought to be mentioned, in justice to Dr Wells of London, that he, after stating as a speculative opinion, that in this affection "inflammation may be supposed to exist sometimes in the head and the chest," adds, "and consequently bleeding, where danger is urgent, may be employed with advantage." In what follows, we have a very striking instance of the strength of the prejudice which at that time prevailed, against bleeding in these affections, from the dread of debility. "I must add, however," he continues, "that I have never prescribed bleeding myself in this disease, and that possibly I should not have courage to prescribe it, if a case were to occur

to me, in which I might think it proper." He farther says, "Whatever opinion may be formed of what I have just said, it seems very evident that the dropsy, which occurs after scarlet fever, is in the beginning a symptom of some state of the body different from debility."* The dropsical state, as it has appeared in Heriot's Hospital during the present epidemic, seems to have been more directly under the control of remedies, than the severe symptoms of the fever in its primary stages.

The *rheumatic affections* have been treated by the warm bath and warm fomentations, and by the use of opium, combined with preparations of antimony, or with ipecacuanha. Where there were swellings of the joints, leeches were applied, and sinapisms, and blisters; and friction, with stimulating embrocations, was afterwards had recourse to. In one boy, as formerly mentioned, after the swelling and pain had been removed by these means, the power of the limb was restored by sea-bathing, and a residence at the sea side of some months duration.

On comparing the state of the fever in the hospital during the three epidemics mentioned in this and my former communication, it appears that in 1804, of 140 inmates of the institution, fifty of the boys were attacked with the disease; in all of them it was very mild in its *primary stages*, and none died of its *primary* and *direct effects*. An emetic was given occasionally, but not generally, on the approach of the fever, and towards its decline a moderate quantity of wine was allowed. This seemed to be necessary in a few cases; but to avoid the appearance of partiality, the practice of giving it was general." † The treatment consisted principally, however, in the use of purgative medicines, which were given fully and freely in all stages of the complaint. The warm bath was repeatedly used; and saline and diaphoretic mixtures were employed in a few cases, with the occasional use of "gargles, composed of port wine, diluted with water, or of vinegar and water, sweetened with honey or sugar."

Dr Hamilton does not state the exact number of patients who became affected with *dropsical effusions;* but three boys died, and two others were in great danger from their effects. In the fatal cases the patients died, he says, "within less than thirty-six hours from the recurrence of complaint, labouring under symptoms denoting ascites, hydrothorax, and hydrocephalus." ‡

* These observations are contained in a very interesting paper on the subject of "the Dropsy which succeeds Scarlet Fever," read by Dr Wells on the 4th November 1806, at a meeting of the Society for the Improvement of Medical and Surgical Knowledge, and it was published in the third volume of their Transactions, p. 167.

† Observations on the Utility and Administration of Purgative Medicines, by James Hamilton, M. D. p. 196.

‡ Ibid. p. 194.

The affection was treated by the use of "suitable cordials, and purgative medicines of appropriate quality." * "Strong purgatives were given in large and repeated doses, sometimes twice and thrice in the same day, before the necessary evacuation was procured." Stimulating glysters were also occasionally employed "to support and promote the efficacy of the purgatives, and to insure a determination downwards." Blood-letting does not appear to have formed any part of the treatment; but this is not to be wondered at, as at that time dropsical affections were generally, or I should rather say universally, believed, by the medical men of this country, to be in all cases the effects of debility. I have little doubt that more of the fever patients would have been attacked with dropsy, and a greater proportion of those who were affected with it, would have died, if it had not been for the full and free way in which active purgative medicines were given by Dr Hamilton, in all stages of the disease, in opposition to the then prevailing prejudice against their use, founded on the erroneous fear of their producing injurious debility, and increasing the tendency to putridity. In this mode of treatment of scarlatina, there was a near approximation to that of the present day, in which even the more powerful antiphlogistic remedies, general and local blood-letting, are had recourse to, under particular circumstances, with the best possible effect in all stages of the disease. The prejudice against the use of purgatives in scarlatina prevailed to a great degree for some years after 1804. Dr Willan, after giving an opinion against the use of blood-letting in the primary stages of the disease, says, "Purgatives have nearly the same debilitating effect as blood-letting. They are indeed seldom necessary; for though a few patients may, on the first day, be affected with bilious vomiting and diarrhœa, the state of the bowels is more uniform than in other febrile complaints." † It is rather remarkable, that no mention is made by Dr Hamilton of the employment of diuretics. This may have arisen, perhaps, from the great confidence placed by the Doctor in purgative medicines, and in the effects of calomel, which he gave very freely on this occasion, even to the extent of producing a considerable degree of ptyalism. ‡

In 1832–33, of 206 inmates of the hospital, forty-four of the boys, and one female adult took the fever. In most of these cases it was of a mild nature in the *primary stages*, and none died of its *primary* and *direct effects*. Emetics were occasionally given in the commencement of the fever; purgative medicines in all its stages; the tartrate of antimony

* Hamilton, p. 193.
† On Cutaneous Diseases, by Robert Willan, M. D. p. 353.
‡ Hamilton, p. 195.

was often employed in nauseating doses to lessen febrile excitement. Local and general blood-letting were had recourse to in some few cases; sponging with cold, but more frequently with tepid water, was much used, and also the warm bath. Stimulating gargles of various kinds were employed. Wine was given in a very few cases.

On the whole, the facts observed lead to the inference that the febrile excitement seems to have been greater during this epidemic than the former. Of the forty-five persons who had the fever, nine boys became affected with *dropsical effusions;* of these one died of *hydrocephalus*, and several were in considerable danger, some of them having laboured under convulsions and symptoms indicative of diseased action within the head, and others under symptoms of an affection of the viscera of the chest. The treatment of the dropsical affections consisted in the employment of general and local blood-letting, of strong purgative medicines, and of diuretics, particularly digitalis, with the frequent use of the warm bath, and occasionally of tartrate of antimony in nauseating doses.

In 1836, of 207 inmates of the house, forty-three of the boys, and one male and one female adult took the fever. Of these cases, two boys died within forty-eight hours of the attack, and one in seven days, all of them from its *direct* and *primary effects*, and a fourth in thirty-three days from its *secondary consequences*, viz. *affections* of the *larynx* and of the *bronchial* and *mesenteric glands*. The fever, which had much more of a typhoid type than during the other two epidemics, was treated principally by purgative medicines and diaphoretics; in some cases by wine and cordials, and by the frequent use of the warm bath. Eight of the boys became affected with *dropsical swellings*, and *symptoms* indicating internal affections of the head and chest, from the effects of which several were alarmingly ill, but none died. This *sequela* was treated by free blood-letting, general and local; by powerful purgatives, and by strong diuretics, with the warm bath. Five of the patients, four boys and a female adult, suffered from *rheumatic affections.*

The extent to which the fever prevailed amongst the inmates of the hospital, and the rate of mortality which took place during the three epidemics, will appear by the following table.—

Year.	*Inmates.*	*Cases of fever.*	*Deaths.*
1804	140	50	3 *
1832-33	206	45	1 *
1836	207	45	4 †
Total,	553	140	8

* In these four cases, death was caused by the *dropsical affections.*

† Of these four cases, three died of the *primary effects* of the fever, and one of the *secondary*, viz. disease of the bronchial and mesenteric glands.

The deaths were in 1804 as 1 to 16.66; in 1832–33 1 to 45; and in 1836, as 1 to 11.25; in the whole cases during the three epidemics, as 1 to 17.5.

CASES.

1. Charles Morrison, aged 9. January 10th, Complained yesterday of headach and sore throat, which had come on the previous night, with cold shivering, languor, and other uncomfortable feelings. An emetic was given, and afterwards a compound colocynth pill. Was hot and restless during last night, and repeatedly attempted to get out of bed; pill did not operate. Two more pills were given this morning. Skin hot; pulse 120; tongue loaded; much pain in the throat; fauces and tonsils swelled, inflamed, and covered with mucus, but there are no white specks. There is an indistinct red rash generally diffused over the surface of the body; and on various parts there are numerous elevated dark-red papulæ, such as are met with in the first stage of eruption in variola.

Habeat Infusi Sennæ dos. ℞ *Tartrat. Antimon.* gr. j. *Aq. Fontis,* ℥i. *Solve. Capt. cochlear. parvum secunda quaque hora.*

January 11th. Senna operated well, vomited after the first dose of the solution, but it has been taken repeatedly since without nausea; has perspired freely; headach relieved; tongue dry, and glazed in the middle, moist and loaded at the tip and edges; throat very painful; general redness of the skin was more faint last night, but the papulæ remained on many parts of the body, particularly on the face, and at the flexures of the joints. Took four grains of calomel this morning. Was very restless and delirious during the night; pulse 120. To-day there is no appearance of the papulæ, but there is a general scarlet eruption on many parts of the body. *Cont. solut. Antimon.*

January 12th. Last evening, the whole surface of the body was covered with a rash of a vivid red colour. There was much pain of head, in consequence of which, eight ounces of blood were taken from the arm with relief; the blood is buffy. Was hot and restless during the night, and occasionally incoherent; has been sponged with tepid vinegar and water. Eruption bright to-day; no headach; throat easier. From this time nothing peculiar occurred in the course of the fever, which was tedious and rather severe.

On January 27th, there was some *œdema* of the face, and a swelling of one of the submaxillary glands, which were removed by leeches, purgatives, and diuretics. He recovered perfectly, but slowly.

2. James Davidson, aged 13. January 12th, 8 P. M. Was seized yesterday with cold shivering and other uncomfortable feelings, but did not mention his complaints till this evening. He is now hot; pulse 120; tongue white and moist; bowels slow; throat red, with swelling of the tonsils, but there are no white spots; no eruption. *Habt. Pilul. Colocynth. Comp. duas.*

January 13th, 9 A. M. Bowels have been fully opened; very restless during the night. There is a bright scarlet eruption gene-

rally over the body; tongue white and moist; some thirst; pulse 120; some pain of throat; fauces red, but without spots. To be removed to the sick-room.

℞ *Aq. Acetat. Ammoniæ,* ℥i. *Vin. Tartrat. Antimon.* ʒiss. *Aq. Fontis,* ℥vi. ʒviss. *M. Capt. cochlear. mag. duo altera quaque hora.*

7 P. M. Has taken two doses only of the mixture. Pulse 120; tongue loaded, moist; some thirst; skin scarlet, hot and dry; no headach; pain of throat easier.

Cap. Calomelanos, gr iv. *statim, et cras mane, Infus. Sennæ dos. Contr. Mistura.* To be sponged with tepid water frequently.

January 14th, Was sick, and vomited after taking the calomel. Bowels were opened once; restless during part of the night. Took somes mall spoonfuls of porridge. His countenance is altered in appearance; he is pale, and has an anxious look; pulse 130, and feeble; eruption much faded; complains of cold; feet are cold; tongue much loaded, moist; fauces covered with mucus. Hot bottles to be applied to the feet, and wine and water to be given warm, according to its effects. The wine was vomited. He continued to sink rapidly, and died at 2 P. M.

On examining the body, no morbid alteration of structure was found in any of the internal *viscera;* on the contrary, they were remarkably sound. The throat was slightly swelled, and there were a few small superficial ulcerations on the tonsils.

3. James Winkworth, aged 8, Jan. 23d, Complained yesterday morning of languor, chilliness, and vomiting, with some degree of diarrhœa. He looked pale, and his pulse was quick and languid. Last night he was sent up to the sick-room comp laining of pain in his throat, and there was a scarlet eruption all over the body and extremities. To-day his pulse is very quick; the eruption is somewhat faded, and his face is of a purplish hue; the throat is slightly red and swelled, with white spots on the tonsils. Leeches had been applied to the outside of the throat.

Jan. 24th. He sunk rapidly, in spite of cordials, the warm bath, &c. and died at 1 A. M.

4. Robert Henderson, aged 12, Jan. 26th. Complains of headach and pain in the throat in swallowing. Skin is partially covered with scarlet eruption. Throat slightly inflamed and swelled, with white spots on the tonsils; pulse quick. To be removed to the sick-room.—*Habt. infus. Sennæ. dos*

Jan. 27th. 9. A. M. A restless night, much pain in the throat; scarlet eruption all over the body; skin hot and dry; throat inflamed with slight superficial ulcerations on both tonsils; tongue moist and white, with red projecting papillæ towards the point; pulse 120; thirsty. Senna not having acted last night, got a purgative injection, which produced a large lumpy stool. *Repetat. Infus. Sennæ pro re nata. Capiat. Mist. Salin. diaphoretic. dos. secunda quaque hora. Utat. Infus. Rosar. pro gargarism.* 7 P. M. Very hot and feverish; throat very painful; senna operated well.

Skin to be sponged with tepid vinegar and water. *Repetat. Infus. Sennæ cras mane.*

28th. Restless night; pain of stomach and throat. Took four grains of calomel last night, which have operated freely, and some infusion of senna this morning, which has acted. Skin covered with eruption of a less vivid red colour, very hot; throat inflamed and covered with mucus. Tongue loaded, red at the tip; pulse 120. To be sponged frequently with tepid water, to have two oranges.

29th. Pain of stomach increased last night. Leeches were applied to the abdomen, which bled well. Took a dose of castor oil last night; some delirium during the night. Bowels open, much eruption on the skin, which in large patches, particularly on the hands, knees, and feet, is of a very dark-red colour; fingers and toes are swelled; skin less hot; throat less inflamed, but very painful; very restless; tongue dry and glossy. dark-red in colour *Habeat statim, Pulv. Ipecacuanhæ et Opii gr.* x.; pulse 122. 7 P. M. Has been very ill all day, restless and delirious. The eruption is, in many places, of a dark red colour in distinct patches; pulse 130. Complains only of pain in the throat. Head to be shaved and a bladder full of snow to be applied to it. *Capt. aquæ acetatis ammoniæ.* ʒi. *ex aqua quaque hora.*

30th. Feet cold; skin less hot. Was in a state of delirium all night, occasionally of a violent kind, during which he was disposed to strike those in attendance on him; slept ill. Cold was with difficulty kept applied to the head. No motion of the bowels. At present very restless. Answers questions distinctly, when roused; says he has no headach, and that his throat is less painful. There are large patches of the skin of a dark-red colour; the line betwixt the different coloured portions of the skin is distinctly marked. Throat less inflamed, and more free from mucus; he swallows with ease. To continue the application of cold to the head. *Capiat. Olei Ricin.* ℥ss. *statim.*—8 P. M. Has been in a state of restless, violent delirium all day; skin rather cooler; feet cold; eyes are suffused; and he is constantly muttering and talking; pulse quicker and feeble. Has had some wine and water, which he takes unwillingly. Castor oil has operated. Swallows with great difficulty; not apparently from pain. Wine to be given frequently, and as regularly as possible.

31st. Very restless during the night. Delirious, talking and muttering, though he has occasionally been sensible enough to recognize his friends; bowels open, but the fæces and urine have been discharged in bed. Skin of moderate temperature; feet not so cold; rash paler. Has been able to swallow some wine and water during the night. A blister to be applied to the head; and wine with water to be given very frequently.

Feb. 1st. Was delirious all yesterday, and only occasionally able to swallow the wine, partly from dislike to it. He continued to sink till 11 P. M. when he died.

5. David Winter, aged 10. Jan. 29th. Was brought to the sick-room last night, complaining of headach and sore throat. Skin was hot, and covered with scarlet eruption. Was sponged with tepid water, and took infusion of senna. Slept well; bowels open. To-day the eruption is less brightly red, and the skin is not so hot. Conjunctiva of the eye red; throat slightly swelled and inflamed; pulse 115. *Utr. Gargarism. Infus. Rosarum.*

30th. Took senna infusion last night, which operated well, and has had another dose this morning. Surface of the body has been sponged with tepid water. Much as yesterday; pulse 120.

31st Much as yesterday. Continue.

Feb. 1st. Coughs occasionally; skin cooler, and rough from desquamation; throat better; tongue moist and clean. To take laxative pills.

3d. Continues to improve; pulse 80; skin desquamating. To have the warm bath.

4th. Complained much yesterday of *pains* in the *legs* and *arms*; bowels open; pulse 100. To have the warm bath, and to have fifteen drops of laudanum, with an eighth of a grain of tartrate of antimony.

5th. A better night. Much pain to-day in the legs and arms; pulse 112. To have laxative pills, the warm bath, and the draught at night.

6th. Good night. Pills operated; skin dry and desquamating; pains in the limbs continue. Repeat the laxative pills, the warm bath, and the draught, if necessary.

7th. Took the draught; a good night. No complaint to-day; pulse 105.

19th. Continued to improve till this morning, when he was attacked with severe *pain* in the *back part* of the *head*. There is *œdematous swelling* of both cheeks, particularly of the left; pulse 60. To have four grains of calomel, and two compound colocynth pills, and the warm bath.

27th. Has continued better since last report till yesterday, when he complained of much *pain* in the *back* of the *head*, and in the *chest*. In the evening the breathing was rather quick, and a little oppressed; face flushed; pulse natural. Eight ounces of blood were taken from the arm. Four grains of calomel, and infusion of senna were given, which have operated fully. Passed a good night; pain in the head and breast are gone; breathing natural; tongue moist and clean; pulse 80.

March 5th. Has been out of bed for two days. Complains to-day of much *pain* in the *hands* and in the *hams*, both of which are very painful to the touch: suffers also from *toothache*; was sick, and vomited last night and this morning; tongue clean; pulse 80. To have an anodyne diaphoretic draught at bed-time, the warm bath, and some opening medicine.

6th. Had a cold shivering immediately after the visit yesterday, which was removed by the warm bath. Slept well, and perspired during the night. Complains much of *pain* in the *hams*, particu-

larly on moving the limbs; they are painful to the touch, but not swelled nor inflamed; is in other respects well; pulse 76. To have a draught at night.

7th. Slept well; perspired during the night; pains in the hams continue, and there is severe *pain* in the *left side* of the *head*, shooting from above the eyebrow; pulse 76.

11th. Has continued to complain of *toothache, pain* in the *head* and left *ear*, and in the *hams* and *ankles*. Has been taking quinine and anodyne draughts.

20th. All the pains have been gone for some days, excepting that in the *left ankle*, which is swelled, and painful to the touch, and prevents his walking.

24th. Still pain in the left *ankle*, and the left *knee* is *swelled* and *painful*, particularly on motion, or when touched. Leeches, sinapisms, and blisters were applied. Soon after this time, he was affected with pain in the upper part of the left *thigh*, with *inability* to *move* the *limb*, which only went off after some months residence at the sea side, with sea bathing.

6. Archibald Johnstone, aged 7. Was taken ill on Jan. 27th, with *scarlatina anginosa*, which went through its course without the occurrence of any particular symptom in the primary stages.

On the 18th February, there was œdema of both cheeks. Took four grains of calomel with two compound colocynth pills.

19th, Medicine operated well; face still œdematous; urine scanty; pulse 80. An eighth part of a grain of tartrate of antimony to be given every second hour.

20th, Face less swelled; urine in larger quantity. Took four grains of calomel and two laxative pills this morning, which have operated well; pulse 88. To have a dose of supertartrate of potass to-night, and two pills to-morrow morning.

21st, Pills have operated; face more swelled; a puffy swelling of the left hand; breathing rather heavy; pulse 100; restless night. A dose of Epsom salts to be given immediately, and to be repeated if necessary.

℞ *Tinct. Digital. purpur.* gt. lxxx. *Spt. Ætheris Nitrosi,* ʒiij. *Aq. Menth. Piperit.* ℥i. *Aq. Fontis,* ℥ij. ʒv. *M. Capt. cochlear. magnum vespere et cras mane.*

22d, Salts operated well; face much less swelled, and swelling of hand gone; breathing natural; tongue moist; pulse 96; no complaint. Warm bath. *Cont. Tinct. Digital. et habt. Pilul. Colocynth. Comp.* ij. *statim.*

23d, Swelling of the face nearly gone; no complaint; slept well; pulse 94. *Cont. Mist. Digital. Habt. Supertartrat. Potassæ, dos.* ij. *in dies. Repetat. Sulphas Magnesiæ cras mane.* The warm bath. 8 P. M. Almost immediately after the last report, took a shivering fit of great severity, for which he was placed in the warm bath. Soon afterwards he became very hot; his face was flushed; he complained of much pain in his head, and vomited; the pulse was so frequent as hardly to be counted; and the heart beat tumultuously; the breathing was short, quick, and oppressed. Eight

ounces of blood were taken from the arm, which he bore well. At present he is feverish, hot, and oppressed in the breathing. *Emit. Sanguin.* ℥viii.

24th, Became very faint and sick after the blooding; was better during the night, and slept tolerably well, although occasionally disturbed by cough; at present makes no complaint, looks comfortable, and the breathing is natural; tongue moist, rather foul; pulse 120; œdema of face less; œdematous swelling of both feet.

25th, Occasionally disturbed with cough; œdematous swellings of face, hands, and feet, are much diminished; pulse 110. From this time he recovered gradually, but slowly, under the use of purgatives, diuretics, and the warm bath.

On March 6th, complained of severe rheumatic pains in the ankles, which were swelled and inflamed. For some time he took quinine and a little wine.

7. James Glass, aged 13, was affected with scarlatina on the 3d February. On the 4th, leeches were applied to an inflamed and swelled gland at the angle of the jaw. The fever went on moderately.

February 23d, Œdema of both cheeks, but makes no complaint; pulse 68, and intermittent. Took two compound colocynth pills this morning. *Capt. Sulphat. Magnesiæ,* ℥iij. *statim, et Calomelanos,* gr. iv. *et Infus. Sennæ cras mane.*

24th, Bowels freely open; œdema less; no complaint; pulse 68; urine blood-red, and coagulable by heat. *Repetat. Infus. Sennæ pro re nata.*

26th, One cheek still a little swelled; no complaint; pulse 60.

28th, 9 A. M. Has continued to take purgative and diuretic medicines; has made no complaint. A little ago he complained suddenly of very severe pain in the forehead, and lost his sight. The pupils were much dilated. After a few minutes the pain went off, the iris of both eyes was for a short time in a state of rapid contraction and dilatation, and his eye-sight returned; œdematous swelling of both cheeks remains; pulse 80 and strong. *Fiat venæ sectio brachii ad* ℥xii. *et postea capiat Calomelanos,* gr. iv. *et infus. Sennæ dos. aliquot pro re nata.*

29th, Blood was very buffy and much cupped. At 3 P. M. yesterday he was free from complaint, but the pulse being strong, ℥iv. of blood were taken from the arm, which is free from the buffy coat. Has had two doses of calomel, four of senna, two compound colocynth pills, and a purgative glyster, which operated fully during the night. No complaint; sees distinctly; swelling of face nearly gone; pulse 96; urine of a yellowish-brown colour, is coagulable by heat, and its specific gravity is 1021. From this time he continued to recover under the use of purgative and diuretic medicines; but his urine remained of an unnatural appearance, and coagulable by heat, till some time after he had resumed his usual avocations in the house, apparently in good health. He has been in the enjoyment of perfect health since.

The Merchant Maiden Hospital.

This is a large building standing in an open, airy situation, close by the Meadows, and in the near vicinity of George Heriot's Hospital. It is appropriated to the maintenance and education of a number of girls, principally the daughters and grand-daughters of members of the Merchant Company of this city. The rooms are large and well-ventilated, and every attention is paid to the comfort of the inmates. Two apartments, with a smaller room adjoining to each, are used exclusively as sick-rooms.

The scarlet fever, which had not been seen in this hospital for a great many years, appeared there on the 7th February 1836; and it continued to prevail till near the end of March.

In February 1836, there were in the house ninety-three girls, from the age of seven to sixteen, one matron, three mistresses, and seven female servants,—forming a family in all of one hundred and four females. The general state of health of the establishment was good; but several of the girls were affected with scrofulous swellings and sores. An attempt was made to prevent the extension of the fever, immediately on its appearance, but it proved ineffectual; and in less than two months, twenty-one of the girls had taken the disease in a distinctly marked form, independently of one or two of them, and one of the servants, having been affected with sore throat and fever, without the characteristic appearances of *Scarlatina.* One girl was taken ill on the 7th February; one on the 16th; one on the 24th; one on the 26th; two on the 27th; three on the 28th; one on the 29th; one on the 1st March; one on the 2d; four on the 3d; one on the 4th; one on the 5th; one on the 13th; one on the 19th; and one on the 24th—in all twenty-one cases. The patients were brought to the sick-room indiscriminately from the four sleeping wards,—more of the younger, however, than of the older girls, were attacked with the fever. In almost all instances the bed-fellows of those who took the disease escaped it, although many of them had not been previously affected with it. Of the twenty-one patients, seventeen were understood not to have had the fever before, in any form; one to have had it; and in regard to three, no information could be procured. The epidemic proved to be rather a severe one, although not so much so as in George Heriot's Hospital. In some cases the fever was mild; several of the girls, however, were very dangerously ill of it, but none died either of its primary or secondary effects. There was no case of the *Scarlatina Simplex* of Willan; eighteen belonged to the varieties denominated *Scarlatina Anginosa* and *Maligna*; and three to the *Scarlatina Faucium.* Of the eighteen cases of *Scarlatina*

Anginosa and *Maligna*, fifteen were said not to have suffered previously from the disease, and in three this was doubtful; and of the three cases of *Scarlatina Faucium*, one was understood to have had it. The symptoms of the fever, and the combinations in which they appeared, were very similar to those which occurred in Heriot's Hospital during the same epidemic; and having been very fully described above, I shall confine myself to a statement of the principal circumstances in which a difference was observed.

I ought to remark, that the fever assumed, in most of the cases, more or less of the typhoid type. The first girl who took the disease had it in the slightest possible form; the fever was moderate, the eruption distinctly marked, there was redness, and some swelling of the tonsils; but she complained of nothing but slight headach, and of great itchiness of the skin during the period of desquamation. She was equally astonished and amused at the great care that was taken of her, and at the length of time she was confined to the sick-room. In one of the cases of *Scarlatina Anginosa*, along with the characteristic appearances of the throat and tongue, though not of a very bright colour, scarlet eruption was observed on many parts of the surface of the body, on the fifth day from the commencement of her complaint; on the sixth, there was super-added a copious eruption of *urticaria*, which remained visible for two days. In another girl, who had been very dangerously ill of *Scarlatina Maligna*, *urticaria* appeared on the tenth day, at a time when the symptoms, from being of the most alarming kind, were beginning to assume a more favourable aspect. The rash continued for three days, causing constant, severe irritation, and disturbing sleep, by the excessive itchiness which it occasioned. In another case of *Scarlatina Anginosa*, in which the girl was affected with *purpura* at the time when the fever commenced, the *purpura* eruption went off on the occurrence of that of *Scarlatina;* and on the sixth day she was affected with sickness and vomiting, with severe pain in the bowels, attended with the discharge of much blood and mucus. These symptoms continued for a short time, but were removed by the remedies employed; and she was afterwards severely ill from *rheumatic pains* in her limbs, arms, and back.

In one girl, who had been alarmingly ill of *scarlatina maligna*, the nails of the whole fingers and toes were gradually thrown off, after the desquamation of the skin. In her the eruption was preceded by very severe and frequently repeated cramps of the lower extremities, and it soon appeared in the hands and fore-arms, feet and ankles, in large claret-coloured patches, and the fingers and toes were much swelled, and very painful. After the eruption had begun to fade, it assumed, on

some parts of her body, very much the appearance of that in *rubeola.* One of the patients, who had been affected with *scarlatina anginosa* in a mild form, had a slight attack of *pneumonia*, thirty days after the commencement of the fever.

In a very bad case of *scarlatina maligna* matter was discharged from both ears, attended with much temporary deafness, and a large suppurating tumour of one of the cervical glands; the sore healed kindly, however, as I have frequently found to be the case after *scarlatina*, and the hearing is now almost as acute as formerly, which unfortunately is a more rare occurrence. In one there was a very severe attack of the *rheumatic affection* in the back, and in the upper and lower extremities; and in consequence of it, the patient was for some time totally incapable of turning herself in bed.

In none of the patients did any *dropsical effusions* occur as sequelæ of the fever. The urine of a number of the patients was examined in different stages of the disease; the specific gravity varied, but there was none in which heat produced any degree of coagulation. In the only case in which œdema was observed, it took place during the swelling and inflammation of the cervical glands, towards the end of the disease; but it seemed to be produced by the local affection, and her urine was not coagulable.

The treatment of the fever was conducted by Dr Abercrombie and myself on exactly the same principles as in Heriot's Hospital. Wine was given in one or two cases, and to its use we were disposed to attribute the cure of one patient, whose life was despaired of. In no case was general or local blood-letting had recourse to, excepting the one in whom pneumonia occurred.

Cases.

1. Margaret Graham, aged 8. March 2. Complained last night of sore throat; to day there is pain in swallowing; there is slight inflammation of the tonsils, and relaxation of the uvula. The glands on the right side of the neck are somewhat swelled; tongue moist, white in the middle, but preternaturally red at the tip, and edges; scarlet eruption on the breast; pulse 100; bowels regular. *Habt. Infus. Sennæ dos. statim.*

3d. Senna operated freely; a good night; some headach, and pain in the throat; scarlet eruption all over the body, and extremities, it is rough and elevated on the arms; throat inflamed, tonsils and uvula swelled, but clean; tongue moist, white, with red projecting papillæ; pulse 120. *Habt. Sulphat. Magnesiæ* ʒiij. *Statim. Capt. Mist. Salin. Diaphoretic. dos. frequenter.*

4th. Salts operated; a good night; has vomited to day; pain in the throat; skin hot; eruption less bright upon the breast, rough on the hands and feet. Tonsils much swelled; mucous membrane of the nose inflamed; tongue moist, but loaded; pulse 124. *Habt. Infus. Sennæ dos.*

5th. Salts operated; eruption on the hands and feet of a dark-red, or purplish cast; throat less inflamed. There is a gummy acrid matter discharged from the eye-lids. Tongue moist, and cleaner; under lip swelled and red; pulse 110.

6th. Was very uneasy all yesterday, and during the night complaining of pain in the head and throat; is much distressed with mucus, which accumulates in great quantities in the throat, and occasionally excites vomiting; skin hot; eruption paler; tongue moist and rough; mucous membrane of the nose inflamed, and discharges a thin acrid fluid; eyes red. She is quite sensible when roused, and spoken to, but occasionally talks, and mutters confusedly; looks ill; bowels open; pulse 125, and feeble.

℞ *Acid. Nitrosi dilut.* ʒiiss. *Syrup. Simplicis* ℥vi. *M. Capiat cochleare parv. frequenter.* Has taken some wine and water during the night.

7th. Continued very ill, and very feeble, during the night; pulse was very frequent and weak; bowels were open; disliked the wine last evening, and swallowed it with difficulty; is sensible, when roused, but often talks incoherently, and attempts to get out of bed. Has taken the wine willingly to day, and swallows more easily; took two glasses and a half of wine, mixed with water, in the course of the night. Much mucus has been discharged from the throat, the membrane of which is inflamed, and has a white sloughy appearance; mouth and tongue very foul; papillæ red and prominent. The pulse is 138; skin is moderately warm; eruption of a purple tint on the hands and feet. The wine is continued.

8th. Much the same till last evening; took her wine reluctantly. Passed a very restless night; screamed loudly, and often attempted, by violent efforts, to leave her bed. Wine has been given with much difficulty. Less mucus in the mouth and throat; skin rather warm; pulse 130 and firmer; moans much; is sensible when roused; has taken nearly three glasses of wine since last night. Wine to be continued, and to have a little arrow-root.

9th. Was very ill all yesterday; a restless night. Has taken, though unwillingly, some arrow-root and wine; is quite sensible at present; looks better. Throat cannot be seen on account of the state of the mouth, which is very foul and tender. There is a quantity of black crust on the lips and tongue, and a yellow scab in the nose, from the discharge of a yellow acrid matter from its mucous membrane; pulse 120. To continue the wine, &c.

10th. Took some calf's-foot jelly, arrow-root, and wine during yesterday. Last night a full crop of nettle-rash appeared on the skin, producing much irritation; tongue and mouth cleaner; an acrid discharge from the right ear; bowels regular; pulse 126. Continue.

11th. Prevented from sleeping by irritation from the nettle-rash, which is increased in quantity; is quite sensible; takes her wine and arrow-root with relish; pulse 120; looks more comfortable. Has taken during the night nearly three glasses of wine.

12th. Continues better; pulse 112; tongue clean and moist.

13th. Better; a good night; *urticaria* gone; tongue clean and

moist; discharge from both ears and much deafness; pulse 120; takes arrow-root and wine eagerly.

17th. Has continued to improve. To-day there are several glands on both sides of the neck enlarged and painful; looks more lively; pulse 112; took thirteen drops of laudanum at night and slept well; much thin fœtid discharge from both ears.

April 3d. Has improved slowly, but gradually; a suppurating tumour on the left side of the neck was opened yesterday; the ears well; convalescent.

2. Christina Penn, aged 12. March 8th. Has been complaining for several days of slight sore throat, and yesterday the eruption of scarlatina appeared on the breast, which is rather of a faint red to-day; has been affected for some time past with purpura, but the spots have disappeared at present; pulse 80. *Habt. Pilul. Colocynth. Comp.* ij.

9th. There is some redness of the skin; throat inflamed, but not much swelled; tongue moist; pulse 100. *Habt. Pilul. Colocynth. Comp.* ij.

10th. Pills operated; eruption nearly gone; pulse 100. *Pilul. Colocynth. Comp.* ij.

11th. Eruption gone; fauces red and covered with mucus; was sick and vomited during the night; some headach; tongue dry; pulse 100. *Habt. Sulphat. Magnesiæ* ʒiij.

12th. Took Gregory's mixture in preference to the salts; vomited frequently in the course of yesterday, and several bloody evacuations from the bowels took place. Got in the evening an injection containing castor oil, which came off with some blood; vomited much green fluid; slept ill from pain in the bowels, which is gone at present; tongue dry; pulse 104.

℞ *Olei Ricin.* ʒss. *Tinct. Opii,* gt. xxv. *cap. statim.* Abdomen to be fomented.

13th. Oil operated without any discharge of blood; slept well, and was free from pain. To-day has had pain in the left side of the abdomen, and has passed some bloody mucus; tongue moist, but white; pulse 88; skin cool. *Repetat. Oleum. Ricin. cum Tinct. Opii,* u. a.

15th. Has continued better; pulse 96. ℞ *Olei Ricin.* ʒi. *statim sumend.*

16th. Complains of very severe pains in her lower extremities, from the hips downwards, and is unable to rest any weight on them; no other complaint; pulse frequent.

Capiat Tinct. Opii. gt. xx. *hora somni.*

17th. Slept well; much pain in the limbs, greatly increased by being touched; pulse 116; tongue moist.

Capiat Tinct. Opii, gt. xxv. h. s. *et Capiat. Mist. Salin. diaphoretic. dos. 3tia quaque hora.*

18th. Slept well; much pain and stiffness in the legs and arms; pulse 116; bowels confined.

Habt. Sulphat. Magnesiæ ʒiij. *Capiat. Pulv. Ipecacuanhæ et Opii,* gr. x. h. s. *Contin. Mist. Cras mane capiat. Pilul. Colocynth. Comp.* ij.

19th. A good night; perspired freely; pains rather easier; pulse 116. *Repetat. Pulv. Ipecac. et Opii.*

21st. Perspired freely; pains in the legs and arms are better, but there is great pain in the back, preventing her being moved without the greatest difficulty; pulse 120, *Capt. Tinct. Opii.* gt. xxx. *cum Vin. Tartrat. Antimon.* gt. xx. *ex aqua.*

22d. Pains in the arms and legs quite gone, that of the back easier.

April 3. Has continued to improve gradually; is able to be out of bed; pulse 100; has been taking sulphate of quinine and laudanum occasionally.

The Trades' Maiden Hospital.

This building is situate in the Old Town; but there is an open space of some extent both before and behind it. The building is very old, and many of the rooms are much too low in the roof, but every thing possible is done to secure ventilation. It is kept remarkably clean, and the inmates are in general very healthy. It is appropriated principally to the maintenance and education of the daughters and grand-daughters of members of the incorporated trades of the city. The sick-room accommodation is very indifferent.

In this hospital scarlet fever appeared in the end of June. At that time there were in the institution forty-seven girls from seven to seventeen years of age, a matron, one mistress, and four servants, forming a family of fifty-three females. The general state of health was remarkably good. One girl was taken ill on the 30th June, three on the 7th July, one on the 8th, one on the 12th, and one on the 13th, in all seven cases. The whole of the patients came from one of the two sleeping-wards, and that the one appropriated to the younger girls. As the sick-room was very ill suited for the accommodation of so many invalids as might be expected to require admission into it; and, as in a very short time the girls were to leave the hospital, as usual, during the vacation, the governors, at my suggestion, allowed their parents and friends to remove them immediately to their own houses, wherever they were inclined to do so, notwithstanding the danger which was pointed out to them of the children becoming affected with the fever at home, from previous exposure to contagion in the hospital. In consequence of this permission, the whole of the healthy girls, with the exception of five, left the institution within three weeks from the first appearance of the fever there. In this way there were only seven cases of the disease in the hospital; and I was happy to learn, that none of those who were removed from it were taken ill at home. I should not have felt warranted in making this suggestion, if the fever had appeared in the hospital early in the epidemic, from a fear of extending it among private fami-

lies; but as it had prevailed most extensively, both in the town and neighbourhood, for nearly twelve months previously, I had no hesitation in making the proposal, from the fear of the effects of the fever in the hospital among so many young people ill accommodated in sickness. The fever proved, fortunately, to be of a very mild nature; most of the cases were very slight, and in none was there any danger. No unpleasant sequelæ of any kind followed the disease, and very little treatment was necessary. In five of the patients the fever belonged to the *scarlatina anginosa*, of whom four had not been previously affected with it in any form; in the other this was doubtful; in two, to the *scarlatina faucium*. One of these had formerly gone through the fever; and in regard to the other, no information could be procured.

John Watson's Hospital.

This is a large modern building in the immediate vicinity of the town, in a high, open, airy situation. It is appropriated to the maintenance and education of a number of boys and girls, without restriction to any particular class of the community. It is kept in excellent order, and there is every convenience for the treatment of the sick.

Scarlet fever appeared in this institution towards the end of November 1835. There were at that time sixty-four boys, fifty girls, and eighteen adults, belonging to the hospital—forming, in all, a family of 132 persons. The following interesting account of the disease as it appeared there, is contained in a letter from my friend, Mr Henry Johnston, dated March 25, 1836:—

"The disease first shewed itself about the end of November; and a case has occurred from time to time, till within these two or three weeks. The children affected were generally from six or seven years of age up to ten or eleven. The number attacked, from first to last, was twenty-two—ten girls and twelve boys. I do not think I have any thing to remark as very peculiar,—the disease, of course, was more severe in some than in others; in two or three cases alarmingly so. I would say, that in severe cases, where the eruption was very free, and stood well out for four or five days, there was generally less of distressing *sequelæ*, such as anasarca. This was particularly remarkable in the worst case which occurred, rather a delicate boy: in him the throat was so affected as to threaten suffocation, but relief was obtained by leeching and blistering; and, finally, after a hard struggle for eight or ten days, the disease terminated by extensive suppurations in the neck. In this case no disposition to dropsical swelling took place. Indeed I may remark, and I think I have made the same observation in my

private practice, that anasarca, and other troublesome *sequelæ*, such as gastro-enteritic symptoms, shewed themselves principally in those cases where the symptoms of general fever were mild, and the disease did not seem to develope itself by a free eruption: this, however, perhaps may be fancy. In mild cases, less care perhaps is often observed during convalescence.

"One boy died: he had the disease in a very mild form, was convalescent, and stirring about. He was suddenly seized with general swelling, breathlessness, cold extremities, and every appearance of sinking;—blistering and stimulants had no good effect, and he expired within twenty hours. I have nothing to add as to the practice I followed. When anasarca threatened, I used a combination of diuretics, calomel and squills in pill, acetate of potass in mixture, with occasionally a small proportion of tincture of digitalis. In several cases the warm bath had the best effect."

George Watson's Hospital.

This is a commodious and well-managed institution, situated in the immediate neighbourhood of the Merchant Maiden and George Heriot's Hospitals. It is appropriated principally to the maintenance and education of the sons and grandsons of members of the Merchant Company. I am indebted to my friend, Mr Benjamin Bell, Junior, for the following full and interesting account of the fever, as it has occurred there during the present epidemic; it is dated Dec. 5, 1836.

"George Watson's hospital remained quite free from scarlet fever during the epidemic which prevailed so generally in the city and its suburbs last winter and spring. This is not easily accounted for, because no precautionary measures were enforced for excluding the contagion.

"Two cases of the disease occurred, however, upon the 20th September, since which date it has continued to run its course epidemically, but in a very slow and gradual manner. Three additional cases took place on the 24th; one on the 13th October; one on the 15th; one on the 26th; one on the 28th; one on the 30th; one on the 31st; one on the 10th November; one on the 13th; one on the 17th; one on the 18th; and one on the 2d December,—in all sixteen cases.

"The inmates of the hospital at the commencement of the epidemic were as follows:—Boys, seventy-six; male adults, four; female adults, nine; first porter's children, two, exclusive of second porter and his family (four), who resided at the gate, and are in daily communication with the others,—in all ninety-five persons.

"Of these, thirteen boys and three male adults are believed to

have had scarlet fever already. There was no sickness of any kind in the house when the fever commenced, and the general health still continues good. Of the fifteen boys and one child, affected, fifteen have had the disease in a well marked form; the other boy had sore throat, and the characteristic tongue of scarlet fever, but no efflorescence. No case has been observed, in which the eruption existed without any affection of the throat; although, in some instances, the latter was so slight, that the patients were scarcely aware of its presence. In addition to these cases, I may add, that the mother of the child was confined to bed for two days, with inflammation of the fauces, accompanied by a good deal of fever. She had never passed through scarlatina. There have been few cases requiring much treatment in the *primary* stages. Free evacuation of the bowels, by means of the more common aperients, and antimonial solution, or some other diaphoretic medicine; tepid sponging of the surface, and occasionally an embrocation applied to the throat, constituted the chief remedial measures. In one instance only, a small blood-letting from the arm was necessary, and in another case, a few leeches were applied to the throat. The boy who was taken ill on the 10th of November, however, exhibited unfavourable symptoms at a very early period, and the disease terminated fatally upon the fourth day. The patient was a boy, 14 years of age. He had an anxious expression of countenance, with great restlessness from the commencement; the pulse was rapid, and easily compressed; the tongue clammy, with a dry streak along the middle; the fauces inflamed, rather dusky, without much swelling. There was little heat of skin; the efflorescence did not appear till the third day, and even then was far from being well marked. The bowels were disposed to be loose, and the stomach rejected every thing that he swallowed. About twelve hours before death, he complained so much of tenderness upon pressure in the epigastrium, that a few leeches were had recourse to; but the vomiting continued, and he sank gradually.

"*Inspection*, thirty hours after death. There was great lividity of the posterior and depending parts of the body. Upon laying open the abdomen, the small intestines had a more vascular appearance than usual; but there was no effusion of any kind, and the serous membrane possessed its natural smoothness. A small recent intus-susception of the ileum was observed about three feet from the ileo cœcal valve; but no local congestion or other change appeared to have taken place; although below this point, the bowels had a flabby, slightly œdematous character.

"The mucous membrane of the stomach presented some traces of morbid vascularity at its cardiac extremity; there was also a

congested state of the vessels in different parts of the canal, lower down; but this seemed to be connected with their depending position. The liver was congested; the gall-bladder gorged with dark bile, which had become extensively transfused through the neighbouring textures. "The throat exhibited no appearances which, by themselves, could account for death. The *velum palati* and *pharynx* were highly vascular; the latter considerably thickened by infiltration of the submucous tissue. The tonsils were slightly enlarged and red, with a small superficial slough upon their posterior aspect. The papillæ and follicles at the root of the tongue were red, and much enlarged.

"The case of the boy who was attacked on the 2d December is still in progress. The symptoms have been rather unfavourable. The pulse was 120, easily compressed, and not very steady; the tongue furred, with a dry brownish streak along its middle; the stomach irritable, with frequent vomiting; the tonsils a good deal enlarged, and painful; and deglutition was difficult. He is considerably better this evening (5th December;) the throat is easier, though still much swollen; the tongue not so dry, and cleaner; the vomiting has ceased, and the pulse is reduced in point of frequency.

"The only *sequela* which has occurred was a tendency to dropsical effusion, in three instances. Two of these were the boys first taken ill; and the œdema appeared in both of them, upon the 9th of October, nineteen days from the commencement of the disease. In one of these cases, there was only a slight puffiness of the face, which lasted for three days. The pulse was not affected. The urine was darker in its colour than usual, and had a mucous cloud diffused through it, which disappeared on the application of heat; no traces of albumen being observed. These symptoms disappeared, under the use of active purgatives, and powders with nitrate and carbonate of potass.

"The other boy was more seriously affected. Œdema of the face was the first symptom which attracted observation. He complained of headach for a single day; but there was no affection of the pulse. The urine was cloudy, highly acid and albuminous. He was bled to eight ounces; was actively purged, and took the same diuretic powders as his companion. He improved for several days under these remedies; the œdema almost entirely disappearing, and the urine presenting little or no traces of albumen. But on the 16th, the face became more œdematous than ever; the hands and feet were slightly swollen, and there was evidently fluid in the abdomen. At this time, the urine was muddy, with a dark grumous sediment, and contained a considerable quantity of albumen. Specific gravity 1.025. Pulse natural; no uneasiness in any part of the body.

"The dropsical effusions gradually disappeared, under the use of purgative and diuretic medicines, and the warm bath at bed-time. Simultaneously with this improvement, the urine became more natural in its colour; the grumous sediment disappeared, and albumen could no longer be detected by the application of heat, and the specific gravity sank gradually from 1.025 to 1.016. He has continued free from ailment to the present period. He sleeps well; takes his food with appetite, and is daily gaining strength; but once or twice, there has been a slight recurrence of œdema in the face. Upon these occasions, the urine contained a little albumen, and its specific gravity rose to 1.019. The urine was for some time not natural in its appearance, having a greenish tint, and depositing a considerable quantity of mucus; but there was no albumen, and the specific gravity did not range above 1.016.

"The third case was mild in the febrile state. The patient had been quite well for several days, although still confined to the sick-room; when, on the 29th Nov., twelve days from the commencement of his disease, the nurse thought she observed a little swelling about the eyes. This was more decided on the following day, and he complained of headach. The pulse was rather full, but not accelerated; tongue pale, slightly furred; urine scanty, and albuminous. He was bled to six ounces, which produced faintness. The bowels were freely opened by purgative medicine. On the 1st of Dec. the headach was gone; œdema of palpebræ diminished; the pulse natural; the bowels open; urine rather scanty, less transparent than usual, and albuminous; specific gravity 1.024. Dec. 5th. He has been gradually improving under the use of purgative and diuretic medicines. The œdema has disappeared, but the urine still continues in some degree albuminous. Specific gravity 1.019."

The Orphan Hospital.

I am happy to say, that a full account of the fever which appeared in this institution on the 25th April, and continued to prevail till the 9th June 1836, will be given to the Society by my friend Mr Brown. In the meantime, I have to state, on his authority, that the inmates of the hospital, at the time the scarlatina epidemic commenced there, were eighty children, and eleven adults. The cases of fever were twenty-three, in all. Of these thirteen had no eruption; but they were considered cases of the disorder, from their having sore throat during the existence of the epidemic. No case terminated fatally.

The following table will show the extent to which the fever prevailed, and the rate of mortality which it occasioned, in the various public institutions above-mentioned.

Year.	*Hospital.*	*Inmates.*	*Cases of Fever.*	*Deaths.*	*Rate of Mortality.*
1804	Heriot's,	140 { 120 Boys, 20 Adults, male and female,	50 Boys,	3 *	1 to 16.66
1832–33	Heriot's,	206 { 179 Boys, 10 Male adults, 17 Female do.	45 { 44 Boys, 1 Fem. adult,	1 Boy,*	1 to 45
1835–36	Heriot's,	207 { 180 Boys, 10 Male adults, 17 Female do.	45 { 43 Boys, 1 Male adult, 1 Female do.	4 Boys, ‡	1 to 11.25
1835–36	Merch. Maid.	104 { 93 Girls, 11 Fem. adults,	21 Girls,		
1835–36	Trades' Maid.	53 { 47 Girls, 6 Fem. adults,	7 Girls,		
1835–36	J. Watson's,	132 { 64 Boys, 50 Girls, 18 Adults,	22 { 12 Boys, 10 Girls,	1 Boy, *	1 to 22
1835–36	G. Watson's,	95 { 76 Boys, 5 Male adults, 10 Female do. 4 Children,	16 { 15 Boys, 1 Child,	1 Boy, ‖	1 to 16
1835–36	Orphan,	91 { 40 Boys, 40 Girls, 2 Male adults, 9 Female do.	23 { 3 boys, 19 girls, 1 Female adult,	None.	
	Total,	1028	229	10	1 to 22.9

In reference to this table, I have to remark, that the number of the inmates of the Trades' Hospital, who suffered from the fever, was, in all probability, materially affected by the breaking up of the establishment, soon after its appearance there.

I consider it a matter of importance, that we have an opportunity of comparing the state of scarlet fever, as it occurred in 1803, in the large seminary at Ackworth, founded and supported by the Society of Friends, for the education of boys and girls; and in the Foundling Hospital in London, in 1804; with that of the same disease in Heriot's Hospital, in 1804. I subjoin, therefore, the following statements; the one in regard to the seminary at Ackworth, published by Dr Binns; the other as to the Foundling Hospital in London, by Dr Stanger.

Dr Binns states, that on the 2d April, the time at which the fever broke out at the Ackworth seminary, it contained 179 boys, and 119 girls. Of the 179 boys, 105 were affected in the course of four months, of whom 5 died. Of the 119 girls, 49 were attacked in the course of two months, of whom 2 died. Dr Binns mentions, however, that in consequence of many of the children

* From dropsical affections.

‡ Three from primary fever, one from diseased mesenteric and bronchial glands.

‖ From primary fever.

having been sent home soon after the appearance of the disease, there remained in the school, at the end of July, only 126 boys; and at the end of August only 90 girls. Dr Binns adds, "I mention this reduction of our list, lest otherwise it might appear that we were more successful than we really were, in defending a great number from the contagion. Besides the children, who were in general between 8 and 14 years of age, a few others of the family were affected by the disease. The following is a statement of the whole.

Inmates.	*Cases of Fever.*	*Deaths.*	*Rate of Mortality.*
179 boys, - -	105 -	5 -	1 to 21
119 girls, - - -	49 -	2 -	1 to 24.5
Masters, apprentices, and servant men, - - -	8 -	0	
Mistresses, servant women, and apprentice girls, -	9 -	0	
	Total, 171	7 -	nearly 1 to 24.

"About thirty other children were affected, but too slightly to be included in the sick-list." About eight years before this epidemic appeared in Ackworth seminary, Dr Binns says, that "*scarlatina anginosa* appeared there in a milder form, so that of sixty who were affected, but one died. This patient was a girl taken suddenly ill with convulsions, after being much reduced by the disease."

In the great and rapid extension of scarlet fever in the Ackworth seminary, we have a satisfactory proof of the extreme difficulty, if not impossibility, of arresting its progress, when it has once appeared in such an institution. For in it the most judicious and active means were had recourse to, to attain, if possible, that very desirable object.

We are informed by Dr Stanger, that "the scarlet fever prevailed among the children at the Foundling Hospital from the end of June to the middle of October 1804; fifty-two boys and nineteen girls were affected with it. Three boys died of the fever; a fourth died dropsical sometime after being dismissed from the Infirmary." In this instance the rate of mortality was as 1 to 17.75.

In bringing this communication to a conclusion, I have to observe, that, as it is made with the view of there being entered on record, for the purpose of future reference, a full and unbiassed history of scarlet fever, as it has appeared in the various public institutions mentioned, I have taken little notice of its symptoms and effects in any other situation. Perhaps it may not be considered much out of place, however, if I here state it to be my opinion,—an opinion not founded upon personal expe-

rience alone, but also upon information received from my medical friends, that the fever, as it has prevailed in this town and neighbourhood during the last seventeen months, has been of a more unfavourable nature, and has proved more destructive of life, than for many years past.

In this fact we have an illustration of the remarkable circumstance in the history of epidemic diseases in general, that in the same situation they are frequently mild in their nature for many successive epidemics, while in the next they assume, without any assignable cause, a malignant character. A knowledge of this circumstance should induce medical men to be cautious not to draw general conclusions in regard to the rate of mortality, to which epidemic diseases give rise, from an experience of a few epidemics; and the circumstance should be taken into account in estimating the effects of the different modes of treatment followed in them, at different times, and in different situations.

From a careful comparison of the symptoms, progress, and termination of the fever, as it has occurred here during the present epidemic, with those recorded by the earlier writers on the subject, I am disposed to think, that no essential alteration has taken place, in the lapse of years, in the character and constitution of the disease, and to doubt whether the rate of mortality to which it gives rise, particularly from its primary effects, has been materially diminished in modern times, notwithstanding the improved state of medical science.

I am not aware of any symptoms, or combinations of symptoms having been met with during the present epidemic, which are not mentioned in the works of the earlier writers on the subject; and, on the other hand, I do not think that there are any symptoms, or combinations of symptoms described by them, which have not occurred on the present occasion. In one respect, however, there appears to be some difference in later times; viz. the rare occurrence of diarrhœa, so much talked of, and so much dreaded formerly; and this favourable change may, I think, be ascribed to the free and full way in which laxative and purgative medicines are now given in all stages of the disease.

The most remarkable circumstances connected with the present epidemic seem to me to consist in the following. 1*st*, In the great extent to which the fever has prevailed among all ranks of the community throughout the country in general. 2*dly*, In the great length of time during which it has existed in this town and neighbourhood: some cases were seen here in July 1835, and since that time it has constantly prevailed and still continues to prevail. 3*dly*, In the severity of the disease, in the high rate of mortality it has occasioned, and in the rapidity with which

death has taken place in many of the fatal cases. Some families have had to regret the loss of several members; and in one, consisting of seven individuals, the father, mother, and four children, fell victims to the disease, an infant alone being left. The mortality has prevailed not only in the families of the lower ranks, in which the deaths might perhaps be attributed, in some degree, to the want of comforts, and of careful attendance upon the sick; but also in those of the higher ranks, and even of medical men, in which the invalids have been nursed with the greatest possible attention, and where the treatment has been conducted by practitioners of the highest eminence. 4*thly*, In the frequent occurrence of severe and painful rheumatic affections, as sequelæ of the fever. And, 5thly, in the number of adults who have been affected with it, both in its primary and secondary form. Few of those who were in attendance on the sick have remained altogether free from its effects on the present occasion, although many of them had been previously affected with the fever themselves, and had afterwards nursed, with impunity, others when labouring under it.

9, *Darnaway Street*, 7*th December* 1836.

Art. V.—*On the Treatment of Scarlatina Anginosa.* By Dr Hamilton, Falkirk.

The train of symptoms, and the modes of treatment of the different forms, or of the sequelæ, of scarlatina, have of late years occupied a considerable space in the columns of this Journal. The space occupied, however, I think, it will be granted by most, has not been more than commensurate to the occasional fatality of the disease, even when it has been treated by the most skilful and the most attentive. The form of this affection, which in general appears to have been most widely fatal, is the anginose variety; evidently in consequence of the simple variety, on the one hand, being attended with little danger, while the malignant kind, on the other hand, is comparatively rare. The few remarks, therefore, which I have at present to make, shall be limited to the first.

I would remark, in the outset, that, in this disease, averages seem to me an exceedingly fallacious mode of estimating the rate of mortality attending different kinds of treatment, when these are applied to different epidemics, or even to those prevailing in adjacent localities. There can be little doubt, I think, that the type, in the circumstances above stated, varies so much as to render doubtful or to invalidate any conclusions that may be drawn from them. For example, the volatile alkali in the

hands of Dr Peart, and the capsicum gargle in those of Dr Stephens, appear to have been considered as almost specific. Other observers, in other epidemics, however, have come to widely different conclusions. To the same effect, in the epidemic which prevailed in Edinburgh during the latter part of 1833, and the commencement of 1834, it was a common observation, that the cases occurring in certain localities, such as the Westport, Grassmarket, Cowgate, Pleasance, &c. were much more virulent in their type than those occurring in the New Town, or even than those which occurred in Heriot's Hospital,* lying quite in the vicinity of the situations I have mentioned. It seems to me, therefore, that accounts of epidemics, or of modes of treatment, which do not furnish us with an exact detail of at least the leading symptoms of the cases, do not place before us the requisite data for drawing accurate conclusions.

But if this be true, in regard to scarlatina as a whole, I believe it to be especially so when speaking of the state of the tonsillar inflammation; and I hold this opinion for two reasons; 1*st*, because the mere vague statement, of "The throat being much inflamed," or similar general expressions, give us no available information, as this occurs in a large proportion of cases that would recover with even the simplest treatment; and, 2*dly*, because, out of a good many hundred cases of primary fever which I have treated, the fate of the patient, in a large majority, has appeared to me to depend upon the effect which the remedies employed produced on the affection of the tonsils. Indeed, I am quite inclined to think, except in malignant cases, that where this is moderate, or can fairly be kept under, the primary fever of the disease in question is in general a very manageable one. Independently of those cases which prove fatal, merely from the extensive sloughing of the tonsils and adjoining parts, every one who has seen violent epidemics, must have remarked how much the formidable secondary affections of the glands, cellular tissue, and even external skin at the angles of the jaws, as well as the tendency of the inflammation to spread backwards to the larynx and trachea, or upwards to the internal ear and brain, are influenced by the intensity of the inflammation with which the tonsils are affected. It becomes, therefore, I conceive, a matter of the utmost moment to ascertain accurately what are the most powerful means we possess for subduing this, in general the most prominent symptom of the anginose form of the disease.

Before adverting to this point, however, it may be well to

* See an account of this in 43d vol. of this Journal, and compare with an account of the former in 39th vol. of the same.

say a few words on the distinguishing characters of the tonsillar affection.

The distinctive characters assumed by the inflammation of the tonsils in *scarlatina anginosa*, when compared, on the one hand, with severe cases of *cynanche tonsillaris*, and on the other with venereal or other common ulcers of the same parts, are, it appears to me, sufficiently well marked. In the cases of cynanche alluded to, the pain is from the commencement severe, and often becomes excruciating, the affection frequently terminating in the formation of abscess. In ulceration, again, the pain is either a raw feeling, or is felt principally when pungent substances are swallowed. These characters are materially modified in scarlatina. The pain, as long as the swelling does not extend to the surrounding parts, is, for the most part, comparatively moderate, even when the tonsils are enormously swollen. I have repeatedly asked patients thus affected, whether they experienced much pain in swallowing, and I have most generally been answered in the negative. I have never yet heard the pain complained of as excruciating, and I have never once seen the inflammation proceed to the formation of internal abscess. When examined, also, the appearance of the parts is very different. In cynanche, it is not so much the tonsils themselves which are swollen, as the anterior and adjacent parts, while, in the ulceration of the tonsils I have alluded to, little swelling occurs, and we see generally more or less clean excavations surrounded by inflammation. On the other hand, I would say, that the chief characteristic of *scarlatina anginosa*, is the inflammation, and particularly the swelling *of the tonsils themselves.* Of course the other parts of the throat are also inflamed, but this exists in other cases, and is most usually of secondary importance.

Of the state of the tonsils in *scarlatina anginosa*, I think we may note three degrees. Of the first kind, are those cases in which the swelling of the tonsils is moderate, and their surfaces clean, the inflammation being apparently at the same time considerable. These are not usually dangerous cases. In the second degree, the swelling of the tonsils has increased a good deal, and we notice a whitish (or sometimes yellowish) secretion, principally at the openings of the ducts, but occasionally covering nearly the whole surface of the glands. This appears to be an albuminous substance. I have seen some of it which had been spit up; it was something like the white of an egg inspissated, but was perhaps tougher. The fever generally is more intense in examples of this description, and the cases altogether are more dangerous than those of the first kind. Examples of the third degree are presented to us, when the tonsillar swelling increases still farther, and ultimately ends in sloughing

of a large portion of the glands. In severe cases, the tonsils often meet, and completely hide the *uvula* behind them. It is in cases of this last kind, I have no doubt, that by far the greatest mortality occurs.

It will be noticed, that in none of these divisions have I mentioned ulcerations of the parts, which are so frequently spoken of by a great majority of modern authors; and I have not done so, because I doubt whether these form an essential part of, or are even common in, the throat affection of *scarlatina anginosa*. No doubt, when the tonsils slough, a solution of continuity occurs, but this happens only in the third degree, and most frequently at a more or less advanced period of the disease. The white albuminous matter seen in the second division, certainly does not generally cover ulcers, for I have often observed the tonsils covered with it one day, and quite free from it and clean the next; while, in cases that never pass beyond the first degree, or during the time that the other two divisions are passing through the first, the occurrence of ulcers on the tonsils is, I would say, from very numerous observations, exceedingly rare.* A person who examines the state of the tonsils superficially, especially when this inflammation is declining, is very apt to be deceived on this point; for we can then often observe a cup-like cavity, formed by the gland. An attentive examination of this, however, will show that it does not arise from ulceration, but merely from the centre of the swollen gland having sunk down more rapidly than the circumference. Nor is attention to this point of slight practical importance; for I am convinced, that by leading those who have not seen much of the disease, to imagine that the healing of these ulcers forms an important part of the local treatment, practitioners are apt to be betrayed into an inert and essentially erroneous practice. From all the observations I have made, I am inclined to think, that in this disease, the inflammation attacks chiefly the tonsils themselves, whereas, in cynanche, it is the subjacent cellular tissue that is the principal seat of the affection.

Having made these remarks upon the characters of this affection, I shall now make a few observations on its treatment. Most of the recent authors who have written upon this subject, agree as to the advantages to be derived from the application of the nitrate of silver. From my own experience, I would certainly say that it is a local remedy of more importance than all the others we possess taken together. Of course, from what I have already said, it will be understood that I do not, as

* I except here minute abrasions of the surface, which I have sometimes seen on the uvula, soft palate, or lips, and which appeared to me to be produced when the nitrate of silver I had been using accidentally touched them.

seems to be the case with some practitioners, limit its application to the healing of ulcers which may appear,* or to the solutions of continuity that are the consequences of sloughing. The former must certainly require very few applications of the medicine, and if we wait till the latter has taken place, in order to apply it, I am afraid we shall often have to lament the inefficacy of this, as well as every other remedy. The important principle in using it, appears to me to be, to apply it to the tonsils, for the purpose of subduing the inflammation existing there, that is, with exactly the same views as we apply the same remedy in catarrhal or gonorrhœal ophthalmia. When this is properly done, either with a strong solution, or with the solid caustic, (the latter of which I generally prefer, from its greater portability and convenience,) we commonly find, if the case is recent, and not very severe, that its effects in restraining the inflammation and swelling are considerable.

To do this remedy justice, my own observation would further lead me to say that it requires to be applied early in the disease. At first, I had some hesitation in using it, before I had previously premised local bleeding, &c. for the purpose of subduing the intensity of the inflammation. I believe, however, that this caution was unnecessary, or even hurtful, by causing the loss of valuable time in the use of a less powerful remedy. The loss of twenty-four hours in the application of the nitrate, makes the most material difference in its power of controlling the inflammation. If it is not applied before the second day of the eruption, I have found that, in severe cases, great difficulty is frequently experienced in preventing sloughing from taking place. When applied on the first day of the eruption, its beneficial effects are much more evident; but I have found its influence most decided when it has been applied *before the eruption has made its appearance.* From my anxiety to get the caustic applied at as early a period as possible, I have been in the habit, for some time past, of regularly examining the state of the throat in all the other children of a family where one had already become affected; and I have been not a little surprised to find, that when the fever is about to be severe, the tonsils are invariably affected at least twenty-four hours before the eruption appears, and sometimes two, three, or more days previously. The day before the eruption appears, the tonsils, which may have been previously merely somewhat tumid or swollen, generally become considerably more so, at the

* "Inspect the throat (in Scarlatina,) both carefully and frequently, and treat the ulceration there with dilute solution of nitrate of silver, or the chlorides."—Dr Badham's concluding lecture in Med. Gazette, Vol. xvi. p. 575.

same time that their colour changes from a pale to a vivid red. By watching these changes, I have commonly been able to tell within a few hours when the eruption would appear, even when there have been no other premonitory symptoms. It is most remarkable, indeed, that the premonitory symptoms in this disease bear no certain relation to the fever which is to follow.

I recently took notes of a case in which the premonitory symptoms were excessively severe, expecting the fever to be so also, and yet this passed off very mildly, and the tonsils were only slightly affected. On the other hand, again, in the same family, I requested that a little girl might be sent for from school, in order that I might examine the state of the tonsils, scarlatina having affected another of the children for several days before this. On examining this girl's tonsils, I found them greatly swollen and inflamed,—in such a state, indeed, that I had no hesitation in saying the eruption would appear within twenty-four hours, which proved to be the case; and instead of being mild, this turned out a very severe attack. Now, when I sent for this girl from school, she appeared well in every respect. Her pulse was natural; she had no pain of the head, or of the throat when she swallowed; there was no sickness or nausea;—nothing, in fine, but the state of the tonsils, could have led me to the belief that a dangerous fever was so nearly impending.

My practice, since I discovered the above to be the case, has been, every morning, to examine the tonsils of those who were living in a family where Scarlatina had appeared, and who had not already been affected by the disease. The instant I have discovered the tonsils beginning to be affected, as I have described, I have touched them with the lunar caustic, and I have continued to do this daily, until the fever has declined. The effects produced by it have been very decided. When a severe case has been thus treated, the progress of the tonsillar affection may in general be said to be as follows. On the day before the eruption shows itself, the redness and swelling become more decided than they have previously been; on the first and second days of the eruption, these are still more increased; on the third and fourth days, the inflammation and swelling continue nearly stationary, but the openings of the tonsillar ducts show more or less of the white albuminous matter which has been alluded to. After this, the swelling and inflammation begin rapidly to decline, and, about the eighth day from the appearance of the eruption, the glands have in general attained very moderate dimensions.

If my observations are correct, it will thus be seen, that the early and continued application of the nitrate does not prevent this local affection from passing through what I have described

as its two first degrees, but that it prevents it entirely from passing into the third, and by far the most dangerous stage, that of sloughing. The second degree, also, is, when thus treated, for the most part very moderate, the power of swallowing being usually little if at all affected.

Of course this practice is applicable, to its full extent, only where the disease has already appeared in a family. But when I compare the ease with which I have, by this means, been able to keep down the swelling of the tonsils, with the intractable nature of similar cases, which I have not seen before the second day of the eruption, it has forcibly impressed upon my mind the importance of applying this remedy, in every instance, at the earliest possible period. Although, also, its applicability is diminished in very small families, the reverse must be the case in hospitals, boarding-schools, and other large establishments, in which this disease may prevail. In private families, indeed, where some of the children had been sent from the house from a dread of infection, I have advised that they should be brought back, in order that the approaches of the disease might be watched, and more effectually checked.

In order that I may compare the effect produced by delaying the application of remedies for twenty-four or forty-eight hours, with those that follow from touching the tonsils with the nitrate before the appearance of the eruption, I shall extract from my note-book the leading particulars, first, of two cases of the former kind; and I shall contrast these with a few of the worst of the latter description, occurring under nearly the same circumstances, which have fallen under my observation.

Case 1.—Aug. 2. John Sharpe, aged 13, complained slightly of his throat on coming from his employment three evenings ago, and has been confined to bed and feverish for two days; but little or no eruption has been noticed on the skin. Has taken only some purgatives, which have operated well.

Skin now moderately hot; pulse 140, soft; tongue foul; papillæ prominent; tonsils enormously enlarged, so that the lunar caustic can be pushed only with great difficulty between them; they are covered with white sloughs and concretions, and seem almost literally to shut up the passage from the mouth into the fauces.

From the state of the tonsils, I was able only partially to touch them with the nitrate. Leeches were ordered to the angles of the jaw, to be followed by a blister and hot cataplasms, which were to be renewed every second hour. I ordered also the steam of hot vinegar and water to be inhaled, and a powder containing one-eighth of a grain of opium, and three grains of calomel, to be taken every third hour.

Aug. 3. Has been slightly delirious during the night; skin hot, but eruption has not come well out; pulse 142, of moderate strength; tonsils so swollen that the uvula is completely hid behind them; has inhaled little, and pieces of the tonsils have been spit up. To continue inhalation, powders, and poultices. To have also a purgative enema, and wine in moderate quantity.

Aug. 4. Has had constant diarrhœa since injection; pulse 130, soft; tonsils sloughing, and the swelling abating, so that the caustic can now be more easily introduced between them.

To have an opiate enema, and to continue wine and poultices.

Aug. 5. Diarrhœa moderated; pulse 104; skin cool; tongue dryish, but cleaner. Large pieces of the sloughs from tonsils have been spit up, but they are less swelled.

Nitrate applied to the tonsils; wine; poultices.

This boy afterwards continued slowly to convalesce, sloughs continuing to separate from the tonsils for several days. It was August 8th, however, before the swelling had so much abated as to allow the uvula to be seen. He was afterwards attacked also with suppuration of the internal ear, and swelling of the external glands. I examined the tonsils four months after this period, when the boy had been able to return to his employment, and found them still considerably swollen, and presenting a very ragged-looking appearance.

Case 2. The eruption appeared on the body of G. L., aged 6, on September 26th, but I did not see him until the evening of the 27th. I found the eruption well out, the skin hot, the pulse 150, and soft, and the tonsils very much inflamed and swollen.

I immediately touched the tonsils with lunar caustic, and ordered the warm-bath and purgatives, to be followed also by leeches to the angles of the jaws, and a powder, containing two grains of calomel and a small quantity of opium, every third hour.

Sept. 28th. Leech-bites bled most profusely, so much so, indeed, that it was found necessary to apply the caustic to stop them; pulse 154, soft; swelling of tonsils increased considerably.

Nitrate applied to the tonsils; a blister to throat, and cataplasms every second hour afterwards. To continue the calomel and opium.

Sept. 29th. Eruption still well out; pulse 164, soft; tongue foul; tonsils meet, so that the uvula cannot now be seen, and when the caustic is attempted to be pushed between them, it meets with considerable opposition. Is greatly distressed, and is at times slightly delirious.

To have some wine and water, and a calomel and opium powder in the evening.

Sept. 30th. The caustic cannot be inserted between the tonsils; pulse 160, soft and vibrating. Is much distressed, and was at times delirious during the night.

To have wine and water occasionally.

Oct. 1. Pulse 154, very soft; tonsils dreadfully swollen, and sloughing. Is very much distressed. At times the breathing seems oppressed, but at others it appears quite easy, and he has no symptom of bronchitis.

Enemata of beef-tea, and wine as before.

11 P. M. Pulse 164, feeble; swallows with considerable effort.

Oct. 2. Has been fully easier during night, and swallows rather better; pulse above 160, very feeble; eruption completely gone, and skin moderately warm; tonsils less swollen, but present a complete mass of sloughs.

To have wine and beef-tea *ad libitum*.

8 P. M. Pulse 168, very feeble; much distressed by oppressed breathing; occasional croupy-cough, with no expectoration; swelling at angles of the jaw considerable.

Oct. 3, 6 A. M. Prostration and distress very great; pulse very feeble and very quick. Has tossed about during the whole night. Has a dry ringing cough, but no expectoration, although a tough mucus appears to accumulate in the back part of the pharynx.

Wine and brandy toddy.

Died at 11 A. M.

An examination of the body was made forty-eight hours after death, and the following are the appearances presented:—Both tonsils were composed of a mass of sloughs, but were less swollen than might have been anticipated. The epiglottis, and parts leading to the opening of the glottis, were swollen and injected. The mucous membrane of the larynx and trachea was also injected, but the lungs were perfectly crepitous throughout. When cut into, however, a small quantity of muco-purulent looking fluid oozed from the larger *bronchi*. The cortical part of both kidneys was converted into a cream-coloured substance, in which some prominent vessels ramified. This cream-colour was seen most conspicuously when the kidneys were cut into, and when contrasted with the tubular substance, which appeared healthy. *

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* I have never before seen the cortical substance of the kidney assume so completely this cream-colour at so early a period of the disease. It was, in fact, exactly like some drawings I have, that were taken from the kidneys of patients who had died from the dropsy after scarlatina, and of some of which I have given an account in the 39th and 42d volumes of this Journal. Does not this, as well as the affection of the tonsils, seem to indicate that the poison of scarlatina has some peculiar action on glandular structures?

Before making any remarks upon these two cases, I shall state the leading particulars of two or three others, among the most severe of those in which I have touched the tonsils with the nitrate before the eruption appeared, or at the very commencement of it.

Case 3.—Aug. 1. Alex. Hosea, aged 10, has been complaining slightly for the last ten days, but has still been going about, and was at church yesterday. Three days ago I examined the tonsils, and found them enlarged, but not inflamed, —having, indeed, rather an unhealthy flabby appearance than the vivid red of tonsillar inflammation. At this time I touched them with the lunar caustic.

I find, this morning, that he has been sick, and complaining of his throat during the night. Over the whole body there is a vivid eruption; his face is swollen, and the conjunctivæ injected; his tongue is foul, with prominent papillæ on its anterior part. On examining his throat, the tonsils on both sides, but especially on the right, are seen red, and considerably enlarged, with a quantity of the white concretion usually seen in severe cases, apparently at the openings of the ducts. The glands, also, at the angles of the jaws are somewhat enlarged; pulse 160, soft; skin hot; considerable prostration.

Tonsils touched with nitrate; warm-bath; leeches to angles of jaws; and a calomel and opium powder every third hour, as soon as purgative already taken has operated.

Aug. 2. Leeches bled well; swelling at angles of jaw and injection of conjunctiva considerably less; pulse 162, full; skin hot, but moist; right tonsil considerably swollen and covered with the white concretion; left, less swollen and comparatively clean; swallows with ease.

A blister to be applied to the throat, and cataplasms every second hour afterwards; two calomel and opium powders to-day.

10. P. M. Skin hot, but moist; pulse 164, soft.

Aug. 3. Some pain of head; skin moist; tongue dryish at point, but elsewhere moist; pulse 136, soft; right tonsil covered with white concretion; left quite clean; swelling of both, the same as yesterday.

Nitrate applied to the tonsils. To continue with calomel and opium as before.

Aug. 4. Eruption declining rapidly; skin moderately warm; tongue clean, but papillæ still prominent; right tonsil swollen, but clean; left one clean, and little swollen; pulse 112. Has taken some food, and seems easy.

Aug. 5. Eruption has almost disappeared; skin moderate in temperature; tongue clean and moist; pulse 100, soft; right

tonsil has some white matter on its surface, but is less in size; left clean, and but little swollen.

Nitrate applied to the tonsils.

Aug. 6. Pulse 96, and skin cool; feels quite easy, and is sitting up. The right tonsil has a very slight appearance of white matter on its surface, and the swelling has greatly fallen.

Nitrate applied.

After this the boy rapidly recovered.

Case 4.—On August 10th I examined the tonsils of Janet Sharpe, aged 9 years, and found them swollen and red, although she complained of no pain, and was otherwise easy. I immediately touched them with the nitrate, confidently anticipating that the eruption would make its appearance within a short period.

Aug. 11. During the night has been feverish, and has had pain of the head; and this morning the conjunctivæ are injected, and the eruption is beginning to make its appearance; skin hot; pulse 152, soft; tonsils more inflamed and swollen than yesterday, and slightly white.

Nitrate applied to the tonsils; leeches; warm bath; calomel and opium.

Aug. 12. Eruption has not come very well out; head complained of; skin hot; pulse 150; tonsils more swollen, but tolerably clean; bowels open.

Nitrate applied to the tonsils; calomel and opium.

Aug. 13. Much the same as yesterday; swelling of tonsils moderate; pulse 144, rather strong.

Tonsils touched; calomel and opium; a blister to throat.

Aug. 14. Eruption fully better out than it has hitherto been; pulse 120; tongue foul; tonsils moderately swollen, and very little white matter on them.

Tonsils touched; calomel and opium.

Aug. 15. Eruption declining; pulse 120; tonsils clean.

Aug. 17. Tonsils now quite clean; becoming rapidly convalescent.

Case 5.—Oct. 2. 10, A. M. Four days ago I examined Alex. L.'s tonsils, and found them tumid, but not very red. I touched them then with the lunar caustic, and have continued to do so every day since. They have continued tumid, the swelling perhaps increasing slightly, and have gradually increased in redness. This morning they are more swollen and red than they have yet been, the left tonsil being less swollen than the right one, although they appeared both equally so yesterday. Even yet, however, the swelling is very moderate, and the boy is going about perfectly free from complaint.

Notwithstanding this, however, as I was anxious to watch

the progress of the tonsillar inflammation immediately before the eruption appeared, which I felt sure was about to take place, I requested the friends to remind me to examine his throat in the evening, and upon doing so I found the redness and swelling increased. Upon examining the skin, also, I found the eruption had appeared.

I touched the tonsils in the morning, and ordered in the evening leeches, the warm-bath, and calomel and opium.

Oct. 3. Pulse 140; tonsils about the same as last night, the left less prominent than the right; no pain whatever in swallowing.

The tonsils touched; calomel and opium; a blister to throat.

Oct. 4. Pulse 132, full; eruption well out; tonsils more inflamed and swollen, the left the least, and no white concretion at the ducts.

The tonsils touched; calomel and opium.

8 P. M. Pulse 156; skin hot and dry; eruption very vivid.

Oct. 5. Pulse 124, full; eruption vivid; tongue foul; seems uneasy and restless; left tonsil moderate as to swelling; right more swollen, and on both is seen some dirtyish purulent-looking fluid.

The tonsils touched; calomel and opium.

Oct. 6. Pulse 112, soft; eruption still well out on limbs, but less vivid on breast; tonsils quite moderate as to swelling, but are covered in some parts with a dirty purulent-looking discharge. Has been taking some porridge, however.

The tonsils touched; to have some castor oil.

Oct. 7. Pulse 88, soft; is quite easy, and has been taking food, swallowing without any pain; tonsils moderate as to swelling, but some darkish purulent matter can still be seen on different parts; eruption declining.

Nitrate applied to the tonsils.

Oct. 8. Pulse 88; quite easy, and eating heartily. On the anterior part of right tonsil a small slough can be seen, and there is still some whitish secretion on the other parts, but the swelling has greatly decreased. Convalesced quickly afterwards.

Were it necessary, I could give the notes of a number of other cases similar to the three last I have related; but the progress and decline of the disease, in most instances, has been so nearly the same, that this would only fatigue without instructing. I have omitted, in the cases I have given, all the unessential details, as my object has been chiefly to direct attention to the moderate character of the tonsillar affection, when compared with the severity of the general symptoms. The first two cases are good examples of the rapid progress which this local affection makes in even so short a period as twenty-four or forty-eight hours; and a consideration of the immensely swollen state of the tonsils

in them, must render it evident, that in bad cases of this disease, if the caustic is not used early, it cannot, in general, be applied effectually, from the mere mechanical impediments; and, indeed, even if it could then be applied, the sloughs covering the surface must prevent any good being done. Had these cases been seen earlier, there seems to me every reason to suppose, from their general symptoms, that the fever would have passed off as easily as in the three latter ones.

Considering the severity of the symptoms, I think it must be granted that the three last cases made uncommonly rapid recoveries. The third case (Hosea,) which threatened to be a very bad one, may be said to have been convalescent on the sixth day from the appearance of the eruption; the fourth case also on the sixth day; and the fifth case on the fifth day; while, of the two first cases, the second proved fatal on the seventh day, and the first was many weeks in recovering. The power of swallowing, it will be observed, was in none of the latter cases related in the least degree impaired, and in all those which I have been able to touch with the caustic before the eruption appeared, the same has been the case. In the third and fifth cases, also, I noticed that the two tonsils were unequally affected, a circumstance which I do not recollect observing to nearly the same extent before I commenced applying the caustic so early. I imputed it to this substance having been more effectually applied on the one side than on the other; to which cause, also, I attributed the appearance of the small slough on the anterior part of the right tonsil in the fifth case.

The most important circumstance, however, to be noted in the latter cases, is the very moderate extent to which the swelling and inflammation of the tonsils proceeded. They never passed beyond what I have called the second degree of this affection, and consequently saved the patients from the prostration, delirium, croupy affection, swelling of the external glands, and other consequences which appear particularly to attend the third or sloughing stage.

This paper has already so much exceeded the length I originally intended, that I have left myself little room to remark upon the general treatment of this disease. I regret this the less, however, as I have nothing particularly novel to offer on this point. I believe, indeed, if I were to speak rigidly from my own observations, I should say, that, after the bowels have been attended to, I have tried, or have seen tried, no general remedies which appeared to me to have a decided effect in controlling bad cases of *scarlatina anginosa*. I have little doubt, that nine out of ten of the cases that prove fatal, do so, directly or indirectly, from the state of the tonsils, and no ge-

neral remedies I have used have seemed to me materially to influence this affection when severe. In the epidemic which I had an opportunity of treating in Edinburgh in 1833–34, I tried general bleeding in some severe cases, but I must confess not with such success as to induce me to continue the practice. I believe, that when the pulse at the commencement is full and very quick, a moderate general bleeding may be used in this, as in continued fever, at least without disadvantage; but these, it is to be remarked, are not in general the worst description of cases, the pulse in the latter being often feeble or soft, and very quick even from the commencement. Where this is the case, I would say, from my own experience, that general bleeding requires to be used with considerable caution; and I confess I am not satisfied, that even the profuse local bleeding which occurred in case second, was not rather hurtful than beneficial.

It will be observed, that I have used in all the cases related calomel and opium. I have done this for two reasons: 1*st*, because I have thought their joint action in determining to the skin might be beneficial; and 2*dly*, because it has always seemed to me important to guard against the occurrence of laryngitis, which, perhaps more than any other complication, is apt to occur in a bad state of the tonsils.

ART. VI.—*Cases illustrating the effects of the Hydriodate of Potass.* By HENRY BULLOCK, M. R. C. S.

CASE I. John Fegram, ætatis 28, March 31, 1836, a coachman. Had two years ago a large deep chancre upon the *dorsum penis*, for which he took calomel twice daily for three months, without either producing salivation, or the slightest improvement in the condition of the chancre. After an interval of two months, he resumed the employment of mercury, and his mouth now became affected, and the chancre rapidly healed. Shortly afterwards, his throat inflamed and ulcerated, and for a time this was treated by caustic applications, and with manifest benefit. Six months, however, elapsed, without the ulcer healing; on the contrary, the affection of the throat increased, and several portions of necrosed bone were thrown off. At the present time the throat presents an enormous cavity, covered by an ash-coloured slough, the tonsils, uvula, *velum palati*, and the pillars of the fauces being all completely destroyed. The exfoliated bones are, the entire vomer, both inferior turbinated bones, the chief part of each palate bone, a large portion of the ethmoid bone, both pterygoid processes of the sphenoid bone, with several smaller fragments.

This man's health has suffered greatly, for his countenance and surface generally are cold and blue, nearly resembling the appearance in cholera; he is much emaciated, unable to sit up in bed; and his legs are œdematous. These symptoms, together with a pulse of 120, and a mere thread; headach, loss of appetite, breath highly offensive, his voice not more than a whisper, together with cough, great difficulty in deglutition, and restless nights, make up a picture of disease rarely witnessed. Under these unfavourable circumstances, so that it was questionable whether he would live a week, eight grains of hydriodate of potass in camphor mixture three times daily, and a grain of opium at bed-time, with diet of beef-tea and porter, were prescribed for him. The *Unguent. Hydr. Nitr. Oxyd.* was also to be applied to the fauces twice daily.

May 2. His health has wonderfully improved; he now passes good nights, has some appetite, pulse 96, of greater volume, and he is able to sit up in bed. The throat is much easier, although in appearance it is about the same.

June 2. He has been daily gaining strength since the last report, and is able to walk about the ward. A considerable portion of bone exfoliated last week, since which, the throat has begun to cicatrize, and the breath to lose its fetor.

July 1. The man has been doing remarkably well, having gained flesh and strength considerably; and is without a single complaint, while his throat is completely cicatrized.

Aug. 1. Continues quite well, and has returned to his employment as a coachman, and on the 1st of September he came to the hospital quite well, except slight œdema of the legs.

Case 2. Samuel George, aged 21, April 2, 1835. Twelve months ago contracted syphilis, for which he took mercury, that slightly affected his mouth; he also used an application to the chancres, which shortly healed, so that he resumed his usual occupation. Two months ago pains in the shin bones supervened, and the formation of nodes soon followed. He has now a complete chain of nodes upon each tibia, exquisitely sensitive, attended with most violent nocturnal pains; he walks with extreme difficulty, and complains of headach, with general debility. *Potassæ Hydriodatis*, gr. viii. *ex. Mist. Camph. ter quotidie.*

April 28. The pain in the legs has decreased, and the nodes for the most part are smaller; the nocturnal pains are not so distressing, and he makes no farther complaint of headach and lassitude.

May 12. He expresses himself as being better, and the nodes have diminished, both in size and in number, so that he is now able to walk without difficulty.

June 1. All the nodes have disappeared for some days, and the tibiæ are no longer painful on pressure.

Case 3. George Kerrison, aged 34, May 20, 1836, a miller, who previously to this malady never had a day's illness. He was three years ago the subject of gonorrhœa, followed by bubo, and an eruption, but he denies having had a chancre, nor can any cicatrix be detected. At the end of twelvemonths, however, pains in the bones commenced, nodes formed upon each tibia, and the whole of the ulna of the right arm became greatly enlarged. For this affection of the bones, he has been severely salivated, and kept under the influence of mercury for a considerable time. The nodes and ulna also were blistered. On his admission, there was great thickening and discoloration of the integuments of the nose, extending to the junction of the nasal with the frontal bone, and his voice and respiration were also affected. Upon the right side of the frontal bone also a hard node has formed, while the right ulna is uneven and very much enlarged, and there is also a large node upon the right tibia. These parts are painful, particularly at night, so that his rest is destroyed. He complains of headach, of lassitude, and of loss of appetite; his pulse is 96 and feeble. *Potassæ Hydriodatis*, gr. viii. *ex Mist. Camph. ter quotidie.*

June 20. His general health is improved, and his head is less painful, while there is no trace of the node left upon the frontal bone; the ulna is smaller, and not so tender upon pressure, and the node upon the tibia is rapidly diminishing; the nocturnal pains are but trifling.

July 16. He now has no pain of head, except upon pressure. The condition of the ulna is likewise improved; the node has quite gone from the tibia, and he is daily gaining strength.

Aug. 1. The tenderness of the bones of the head has subsided, the integuments of the nasal and frontal bones have resumed their natural appearance, and the affection of the ulna is diminished.

Aug. 20. Quite well.

Case 4. William Skinner, aged 31. May 12, 1836. He states that he first had syphilis three years ago, for which he was salivated during a month, and then pronounced cured. For the last ten months he has had a sore throat. The *velum palati* and tonsils are now excessively florid and turgid, and there is an ulceration extending completely through the soft palate, exposing to view a portion of the palatine process of the superior maxillary bone, which is denuded of periosteum and scabrous. He has also a node upon each tibia. His general health is not affected. *Potassa Hydriodatis*, gr. viii. *ter quotidie ex Mist. Camph.*

June 2. Both the nodes are quite gone, his throat is much less inflamed, and the exfoliating portion of bone in the mouth is small and quite loose.

July 1. The necrosed portion of bone has been thrown off, and the soft parts have since completely healed.

July 20. Continues quite well.

Case 5. George Agent, aged 45, May 21, 1836, states that, four years ago, he contracted two large and deeply excavated chancres upon the penis, for which he was salivated, and kept under the influence of mercury for six weeks, when he considered himself as cured. The following year he had an ulcerated throat for some months, and was then first attacked with pain in the cranial and shin-bones, for which also he was salivated. There are now five nodes upon his head, all in a state of suppuration, fluctuation being very evident. The whole of the right side of the head, as low as the zygoma, is very painful, particularly at night; and there is also pain and tenderness of the shin-bones. His general health is considerably affected, and he complains of great debility, of loss of appetite, of restless nights, and he has lost much flesh. His pulse is 96, small and feeble, and his bowels are disposed to constipation. *Potassæ Hydriodatis*, gr. viij. *ter quotidie ex Mist. Camph.*

June 10. His general health is much improved; the headach and other nocturnal pains are less distressing. Pulse 88, stronger; the nodes likewise are less.

July 20. Not the slightest vestige of nodes, or periosteal thickening can anywhere be discovered. He is quite free from pain, and has in a great measure regained his flesh and strength.

Aug. 12. Quite well.

Case 6. W. H. Phillips, aged 25, May 30, 1836. Contracted a gonorrhœa three years ago. He positively states that he never had sores of any kind, nor is there any cicatrix visible. For this complaint he was under surgical care for two years; but was not salivated. During the last twelvemonth he has had a sore throat, for which he has been under a mercurial plan of treatment; and within the last five months an eruption of *rupia* has made its appearance in various parts of the body, accompanied by nocturnal pains in the bones, and a node of enormous size upon the front of the left tibia. His health is tolerably good. *Potassæ Hydriodatis*, gr. viij. *ex Misturâ Camph. ter quotidie.*

June 20. There is very little of the eruption remaining, and the size of the node is somewhat diminished. He is no longer disturbed by nocturnal pains.

July 7. The skin is now perfectly clear of eruption, and there is scarcely any vestige of the node remaining.

July 20. Quite well.

Case 7. William Andrews, aged 32, June 20, 1836. Contracted syphilis twelve months ago, having chancres upon the *corona glandis*, which are plainly demonstrated by the deep cicatrices they have left. He was severely salivated ten months since, and has been the subject of nodes situated upon the frontal and each parietal bone for the last four months; and during the last few weeks has had a dull aching pain in the shin-bones, with great irregularity and tenderness in their whole length. His health is good, but his rest is much broken by nocturnal pains in all the affected bones. *Potassæ Hydriodatis*, gr. viij. *ter quotidie ex Mist. Camph.*

July 4. The nodes upon the head are free from pain and diminished in size; those of the tibia remain much the same. He now passes comfortable nights.

Aug. 1. There is neither tenderness nor irregularity of surface, either of the cranial bones, or of the tibia; and he feels himself quite well.

Case 8. John Bartlett, aged 38, June 23, 1836. Was intensely salivated, and for some time kept under the influence of mercury, for disease of the liver, at the early part of last winter, and has been subsequently troubled with pain in the bones of the extremities for the last three months. He is now unable to walk, and has considerable thickening and unevenness of each tibia, with a large node in the centre of the left. The ulna of the right arm, and the frontal bone, are traversed by a number of small, hard prominences, tender to the touch, and exceedingly painful at night. His countenance is pale and depressed, though he makes no complaint of general illness. *Potassæ Hydriodatis* gr. viij. *ex Mist. Camph. ter quotidie.*

July 11. The man's appearance is remarkably improved. He has no nocturnal pains, and the nodes are rapidly disappearing from every part.

Aug, 3. Quite well.

Case 9. Thomas Child, aged 36, July 6, 1836, states that he had gonorrhœa twelve months ago, not attended with any breach of surface, nor can any cicatrix be found on inspection: he also states that he has not taken any mercury. A period of two months having elapsed, he had an ulcerated sore throat, which was slow in healing. During the last four months two nodes of large size, situated upon the centre of each tibia, have formed. The nocturnal pains are severe and distressing. His body is for the most part covered by an eruption of small suppurating tubercles. His general health is unimpaired. *Potassæ Hydriodatis ex Mist. Camph. ter quotidie.*

August 6. The nodes have considerably diminished, and his rest is no longer disturbed.

August 17. The nodes, as well as the eruption, have entirely disappeared.

Case 10. Timothy Crowley, aged 50, July 12, 1836, Reports that he had a chancre with bubo six years ago, for which he was placed under a mercurial course of medicine, and was kept in a state of severe salivation for a month, at the end of which time, the chancre and bubo having healed, he was considered quite well. Subsequently he has had stricture and swelled testicle, which were treated in the ordinary manner. Four months ago, he perceived several small, hard elevations upon the head, and one upon the left tibia, accompanied by an eruption, all of which have increased up to the present time. There are now not fewer than six nodes upon the vertex and forehead, and one of large size upon the left tibia. He is in constant pain, which is considerably increased in severity at night. The eruption consists of rupial sores, intermixed with spots of lepra upon the head and arms. His health in other respects is good. *Potassæ Hydriodatis*, gr. viii. *ter quotidie ex Mist. Camph.*

August 12. The whole of the eruption has disappeared; all the nodes have diminished in size, and he makes no further complaint of nocturnal pains.

August 25. Quite well.

Case 11. John Burgess, aged 52, July 20, 1836. He was three years ago smartly salivated, in consequence of an inflammatory affection of the chest, and although exposed to continued wet and cold, he was kept in a state of ptyalism for four months. About six months afterwards, he suffered greatly from pains in his bones, and from the formation of nodes, which have continued up to the present time, and for the cure of these he has been under medical treatment several times. There are now several nodes of large size upon the frontal and parietal bones, so that the whole surface of the head is very irregular, from these large prominences. He has also one of considerable magnitude upon the right ulna, as well as many of smaller size upon each tibia. He is in constant pain, which is, however, much aggravated at night; his cranium is exquisitely tender to the touch; he also suffers from intense headach, intolerance of light, dimness of vision, and giddiness; he is emaciated, passes restless nights, and has very little appetite, with a pulse small and weak. *Potassæ Hydriodatis*, gr. viii. *ter quotidie ex Mist. Camph.*

August 6. His general health is in a much better condition; the head symptoms are very much relieved, and the nocturnal pains are not so distressing.

August 22. He is able to walk about, expresses himself as

feeling quite well. The nodes of the cranium are entirely gone, and have left no tenderness, even under pressure; and those of the extremities have likewise decreased.

August 29. Quite well.

St Thomas' Hospital, Sept. 9, 1836.

The above cases occurred in St Thomas' Hospital, under the care of Dr Williams, with whose permission they are published. I also beg to observe, that I have seen each case within the last week, and can confidently assert that there is not, in any, the slightest return of the disease.

ART. VII.—*Experiments and Observations concerning Fractures of the Patella.* By GEORGE GULLIVER, Assistant Surgeon to the Forces. Communicated by Sir James M'Grigor, Bart., Director-General of the Army Medical Department.

IT is now known that certain fractures of the patella are sometimes consolidated by means of osseous matter, while others are rarely or never repaired in this manner. Hence it becomes an interesting inquiry to ascertain the precise condition of the parts implicated in the different fractures to which this bone is liable, and to determine the various modifications of injury which influence the reparative process.

Independently of the usual arrangement of fractures of the patella, it is necessary to regard them in connection with the causes by which they are produced, in order to arrive at accurate information concerning the state of the tissues involved in the injury.

In the fracture from muscular action, the force which divides the patella transversely, also completely ruptures the strong aponeurotic layer expanded over the front and sides of the bone, so as to allow of more or less separation of the fragments.

The fracture from external violence most commonly results from a fall on the knee, less frequently from gun-shot or incised wounds. In the former, although almost every variety in the direction of the fracture may occur, unless complicated with violent muscular contraction, the fibrous tissue in front of the bone generally escapes division, and is seldom, except in some compound fractures, torn to an extent corresponding to the split in the bone. Thus, whatever may be the direction of the fracture, accurate coaptation of the fragments is often preserved, which the swelling and immobility of the contiguous parts, from the violence of the injury, is calculated to continue. Of the

extent to which the patella may be fractured without laceration of the fibrous layer in front of the bone, I have satisfied myself by experiments on the dead body. After having broken the bone by a blow of a hammer, I have uniformly found the fragments connected together in the manner described; and I may remark, that this method of fracturing the patella affords a good view of the fibrous arrangement of articular cartilage, as described by Dr William Hunter in the Philosophical Transactions.

In gun-shot injuries, to whatever extent the bone may be broken, the wound of the membrane will very nearly correspond to the size of the ball, enough of the fibrous tissue being left entire to preserve the contiguity of the osseous fragments.

In fractures from incised wounds, if transverse, the fragments will be drawn apart by muscular action; if longitudinal, they have no tendency to separate, unless the wound of the membranous part be of great extent.

Mr Stanley has recorded a case of fracture of the neck of the thigh-bone without entire laceration of its investing tissue; and Boyer regarded the extent to which this part may have been torn as of great importance in the reparation of certain forms of this injury, as well as in fractures of the patella,—an opinion also adopted by Dupuytren and Mr Liston. But Sir Charles Bell mainly attributes osseous re-union of some fractures of the patella to the bloody effusion, tumefaction, and rigidity of the injured parts, while Camper and Callisen deny the possibility of perfect consolidation of transverse fractures of this bone,—an event which Sir Astley Cooper failed to produce in the interesting experiments which he instituted in order to determine the question.

The valuable remarks offered by Mr Mayo in explanation of the cause of the imperfect union in fractures of the intra-capsular portion of the neck of the thigh-bone, are in great measure applicable to the patella. As it is certain, however, that transverse fractures of the latter are occasionally repaired by bone, it remains only to inquire under what circumstances this may be effected. Although my attention was originally directed to an examination of the successive steps of the reparative process, it does not appear necessary to detail systematically the numerous experiments which were instituted with this view, since, in addition to those to be adduced on the present occasion, I now perceive that I could but repeat the accurate observations of Sir Astley Cooper.

Experiment 1.—The patella with its aponeurosis was transversely divided in a rabbit by the points of a small pair of cutting-pliers, introduced beneath the skin at some distance from the bone. The upper portion was immediately retracted about

a quarter of an inch. Ninety days after the injury, the fracture was found to be united by a dense fibrous tissue; and a quantity of new osseous matter extended from the broken extremities into the fibrous substance, of the form, and about equal to the original size of the fragments, which has thus assumed the appearance of two symmetrical patellæ.

Experiment 2.—The patella of a rabbit having been fractured as in the preceding case, precisely the same results were observed at the expiration of forty-eight days from the injury.

Experiment 3.—The patella was fractured as in two former instances, and the upper fragment was retracted about the sixth of an inch. Fifty days subsequent to the injury the fragments were connected by a dense fibrous tissue, and the rounded extremities of the new bone, which projected from the fractured ends into the intervening fibrous substance, had become approximated, but not consolidated together.

Experiment 4.—The patella with its aponeurotic covering was transversely divided by the cutting-pliers in a dog. The fragments were separated about a quarter of an inch. Thirty-nine days after the injury the animal was killed, and injected with size and vermilion. The fracture was united by fibrous tissue, and the new osseous matter, which presented at the extremities of the fragments as previously described, exhibited a high degree of vascularity, as did also the intervening and surrounding fibrous substance.

Experiment 5.—The patella of a dog was fractured as in the former case, when the upper fragment was retracted about half an inch. Ninety-four days subsequently, the animal was killed and minutely injected. The fragments were connected together by fibrous substance, which was shewn to be extremely vascular, but there was scarcely any formation of new bone.

Experiment 6.—The patella of an old dog was fractured transversely, the aponeurosis in front of the bone being left entire. There was no separation of the fragments; and twenty-seven days afterwards, when the part was dissected, they were found closely connected by extremely short ligamentous fibres, but no new osseous matter had appeared. The fragments and contiguous fibrous tissue were shown by injection to be very vascular.

Experiment 7.—The patella of a young rabbit was fractured transversely, without injury to the aponeurotic layer in front of the bone. There was no retraction of the upper portion, and, thirty days subsequent to the injury, the fragments were firmly consolidated by osseous matter.

Experiment 8.—The patella of a rabbit was fractured transversely, leaving the aponeurosis entire. There was no separa-

tion of the fragments, and they were perfectly consolidated by bone sixty days subsequently.

Experiment 9.—The patella of a dog was fractured in the same manner as in the last instances. The fragments remained in contact, and, in the course of one hundred and twenty days after the experiment, had become united by osseous matter. The bone was macerated during three months, and then boiled many hours, without affecting the uniting medium.

Experiment 10.—The patella of a dog was fractured transversely without division of the aponeurosis. The fragments remained in contact, and were found completely consolidated by osseous matter one hundred and seventy days after the injury. The bone was boiled as in the preceding case, and with the same result.

Experiment 11.—The patella of a dog having been fractured transversely as in the preceding instance, sixty-five days subsequently was found to be firmly consolidated by bone, which resisted the effect of long-continued boiling.

Within the course of a few months I have seen two examples of fracture of the patella united by osseous matter. The bone to be first described is deposited in Mr Liston's museum; and for the notes of the case, and an opportunity of examining the preparation, I am indebted to the kindness of Mr Robertson of Chatham. The subject of the second case was a soldier who was some time under my care in the surgical division of the general hospital at Fort Pitt.

Case 1.—James Gardner, aged 24, fell from the main-top of the Brig Mary of Newcastle. He received the force of the fall on his knee, and broke the patella transversely into two equal portions. He was immediately confined to bed, and the limb was kept in the extended position. Seven weeks after the accident he died of hectic fever from extensive suppuration within the joint and cellular substance of the limb.

On examination after death, the fracture was found to be firmly united, partly by bone, and partly by dense fibrous tissue. After the latter had been destroyed by long-continued maceration, the new bone was seen extending in numerous points, between the fractured extremities; and a small fragment, which was partially detached from the side of the upper portion, was dead, and in progress of exfoliation.

Case 2. E. Marr, aged 35, received a gun-shot wound in the left knee, while on service in India. The ball entered the back part of the joint, and shattered the patella in its exit. Twenty-six months after the injury, he died at Fort Pitt, of an enormous abscess of the liver.

On dissection, the patella was found to have been irregularly

broken. The fragments were completely consolidated by osseous substance, and united to the femur, so that the cancellous texture of the two bones was continuous. There was also anchylosis between the thigh-bone and the tibia.

From the preceding observations, the following results may be deduced.

1. When the aponeurosis is completely divided, as in the fracture from muscular violence, osseous union is not to be expected.

2. In those transverse fractures, in which bony union fails, the fragments and intervening fibrous tissue are plentifully supplied with blood-vessels; the defective reparation, therefore, not being referable to imperfect nutrition.

3. When union in transverse fractures is effected by fibrous substance, osseous deposit frequently takes place on the fractured extremities, so that the fragments assume the appearance of two symmetrical bones.

4. Osseous union is simply the effect of immoveable coaptation of the fragments, the provision for which, in certain forms of fracture, is the integrity of the aponeurosis in front of the bone.

5. The new bone which appears in fractures of the patella, is entirely formed from the broken extremities of the old bone; the surrounding textures seldom or never passing into the osseous state.

6. Fibrous tissue immediately precedes the deposition of new bone; no cartilaginiform substance presenting during any stage of the ossific process.

Lastly, several physiologists, including Meckel, and the late Mr Wilson, explain the re-union and restoration of bone, by the laws which preside over its first formation. But I have shown, on a former occasion, * how this doctrine fails in regard to fractures of the shafts of the long bones; and the work of reparation in fractures of the patella is equally destitute of analogy to its original growth; during no period of which is a fibrous tissue observable, similar to that which is constantly produced in the re-union of its fractures. And, notwithstanding the long time which this bone retains its cartilaginous state, we have seen, that in fractures of the patella, the formation of cartilage marks no stage in the reparative process.

The method by which fracture of the patella was effected in these experiments, without dividing the aponeurosis in front of the bone, was very simple. A forceps was used with a small-pointed cutting blade, made to approximate nearly to an oppos-

* Edin. Med. and Surg. Journal, No. 124.

ing flat surface; and Dr Davy has witnessed the precision with which this instrument fulfils the object for which it was constructed.

The preparations described in this paper, with the single exception specified, are all contained in the museum of the Army Medical Department, which is open to the profession, through the kindness of the Director-General.

Fort Pitt, October 1836.

ART. VIII.—*Case of Death from the bite of a Poisonous Snake* (*Bungarus lineatus*, Daudin.) By DR DEMPSTER, 38th Regiment. Communicated by Sir James M'Grigor, Bart., Director-General of the Army Medical Department.

IN the last number of this Journal an interesting case is given by Mr Gulliver, of shortening of the neck of the thigh bone without fracture. It occurred in the person of a young soldier of the 38th Foot, who died in consequence of the bite of a snake at Ghazeepore, on the Ganges. The snake was sent by Dr Dempster to the Museum of the Army Medical Department at Fort Pitt, where it is preserved. It was found, on examination, to be a species of Bungarus, apparently the young of the *B. lineatus* of Daudin (*Boa lineata*, Shaw; Geedi Paragoodoo, Russell;) and, judging from its size, it may be considered as about half-grown. It is a snake common in Bengal, especially in the neighbourhood of Ghazeepore,—is much dreaded by the natives, and its bite is said to be commonly fatal.

The following particulars of the fatal case in question are extracted from Dr Dempster's Annual Professional Report for the year 1832. There are so few histories of the effects of the poison of snakes on record, especially on man, that every additional one is valuable. The subject is important; at present it is obscured by vague generalities. When it is further and minutely investigated, probably it will be found, that the effects of the poison of each different species of venomous snake are in some respects peculiar, and that each may require a different mode of treatment.

John Lynn, of stout make, and sanguineous temperament, was suddenly awakened by a pricking sensation over the sacrum, and on looking around, he perceived a snake gliding along the floor. He instantly got out of bed, and, with the assistance of his comrades, killed it. This was about two o'clock in the morning. About fifteen minutes after receiving the bite, he was seized with a disposition to syncope, accompanied with a cold clammy perspiration, and followed by nausea and vertigo. A draught

composed of a drachm of *spiritus ammoniæ*, the same quantity of sulphuric ether, and of two drachms of camphor mixture, was administered,—to be repeated every half hour; and *potassa fusa* was freely applied to the bitten part.

At 3 A. M. the pulse became very quick (150 in the minute) and small; the skin cold and clammy; the vertigo increased with dimness of sight. At 4 A. M. he was suddenly seized with spasms in the muscles of the throat, with inability to speak, difficult deglutition, hurried respiration, and tendency to coma. The medicine was continued, with the addition of a drachm of laudanum to each dose. At 5 A. M. all the symptoms became worse; the spasms of the throat more severe, extending to the abdomen and loins; the clammy perspiration general and profuse; the countenance expressive of great anxiety; and the pulse weaker. The cold affusion was now applied to the head, neck, shoulders, and spine; the draught continued with hot brandy and water, and a stimulating enema was administered. At 6 A. M. after the cold affusion, the spasms were less severe; the coma had increased; the pupils were dilated; he was unable to swallow; made frequent attempts to vomit; there was frothing at the mouth; and the skin continued to be covered with a cold clammy sweat. At 7 A. M. the coma was complete; the pulse at the wrists scarcely perceptible; the respiration laborious. At 9 A. M. he died.

Sectio cadaveris; shortly after death. The vessels, both arterial and venous, of the membranes of the brain and spinal cord contained much blood. There were nearly three ounces of limpid fluid in the ventricles of the brain, and a small quantity in the beginning of the spinal canal. Two ounces of fluid were found in the pericardium, and dark fluid blood in both ventricles of the heart. The liver and spleen were much enlarged. The other viscera were not apparently diseased.

The wounds inflicted by the snake were situated, one on each side of the sacrum. Nothing peculiar is noticed in the report respecting them.

ART. IX.—*Observations on the question, whether the symptoms indicative of the presence of Lues Venerea depend on one or several distinct poisons.* By GEORGE T. MORGAN, Esq. Lecturer on Surgery, Aberdeen.

WHEN we reflect on the diffusion of syphilis throughout almost all known parts of the globe, the effects it produces, whether immediately or remotely, in the animal economy,—and more particularly when we are made aware, that its infliction follows

as a punishment of the promiscuous gratification of the sexual appetite, we cease to wonder that the investigation of its phenomena should have been so long and eagerly carried on. Among many interesting questions yet remaining to be solved is that of the plurality of poisons. We do not, be it remembered, speak of the poison of syphilis or gonorrhœa; but whether the primary and secondary symptoms of syphilis, in all the diversified forms we meet with, are occasioned by the existence of one or more varieties of the morbid virus. If we were desired to draw any inference from the question as it is generally stated, we might at once, and without hesitation, affirm our ignorance; for, in as far as the nature of the syphilitic poison is itself concerned, we have no means of ascertaining whether it retains at all times its identity or not. We ought rather to inquire whether the various symptoms of syphilis ought to be referred to only one source of infection?—or, if there be any regular succession in the appearance of certain symptoms, so as to impress us with the belief, that the sources of infection are multiplied?

Although the different characters of sores on the organs of generation had been long pointed out by Mr Hunter, his pupil, Mr Abernethy, and others, it was never conjectured, that there might exist a plurality of poisons to account for the varieties observed; and to Mr Carmichael of Dublin, the credit of this ingenious and attractive theory alone belongs. We may perhaps appear to some to have erred in calling this a theory, because it is by several held to be a matter of fact, deduced too from practical experience; but as we consider nothing can be received as fact, which admits either of controversy or other mode of explanation, the term theory in the meantime is correctly enough applied.

To maintain the truth of this doctrine, Mr Carmichael has assumed, that every primary ulcer is followed by a particular order of secondary symptoms,—both resulting from the application of a peculiar variety of the morbid virus. His observations have led him to the conclusion, that there are four kinds of sores, each of which is succeeded by its own train of constitutional effects; and thence he draws the inference, that there are four varieties of the morbid poison, on which the existence of all these symptoms depends. Were primary sores strictly limited to four varieties, and were each followed by a definite train of secondary symptoms, and by no other, the inference, that there were four kinds of the syphilitic poison, would be plain, however unable we were to demonstrate it by any actual examination of the virus itself. Proceeding still farther, Mr Carmichael has set apart the species of sore which will be fol-

lowed by its own appropriate secondary symptoms, and thus endeavoured to establish a certain uniformity in the order of events. His doctrine of the plurality of the venereal poisons, may be conveniently discussed under the two following heads. Does each particular primary sore propagate its own kind? And, is each primary sore connected with a definite set of secondary symptoms, and with no other?

I. With respect to the first question of each particular primary sore propagating by inoculation its own kind, nothing should appear to us more reasonable. Thus the first step might be granted. Unfortunately, however, one of those circumstances, which with many others have rendered the investigation of syphilis so difficult and obscure, here interposes itself;—namely, the impossibility of tracing with certainty different cases to the same source of infection; and again, of ascertaining distinctly, what that source of infection is. We have seldom found it possible for even a single individual, carrying on a promiscuous intercourse, to be able to state with accuracy from what party the disease had been received; nor, if we had the necessary information, would there be much hope of our learning the condition of the person by whom the disease had been communicated. On this point, then, in ordinary practice, are we foiled. As far as the evidence of parties can be applied, we think it unfavourable to the notion of one sore propagating another of like kind; but in order to render statements of this description correct, it is necessary to know precisely the disease under which the female laboured, and to be likewise assured that the male had not exposed himself to any other source of infection.

We may illustrate the importance of attending to these directions by reference to a few examples. Mr Lawrence* mentions a case which came under his charge, where a married woman had contracted the disease from her husband; and while the disease in her consisted of a well-marked phagedenic sore, which nearly destroyed one of the nymphæ, her husband had merely superficial sores on the prepuce, not possessing any phagedenic character. Although such a case appears correctly told by some of the parties, and may undoubtedly have been so, still where exposure, and especially in married persons, is made, we are not to place implicit confidence in the statements given us. Both these were hospital patients. We have no positive testimony, save the woman's own, that she did not contract her disease from some other one than her husband; and though by no means a general rule, we have often observed among the lower ranks of life, that where a breach of faith has

* Lectures on Surgery.

arisen on one side, it is speedily followed up by a similar enactment on the other. Another case, which has been often quoted, and which is reported by Dr William Fergusson, Inspector of the British troops then in Portugal, is that of an opera dancer at the Lisbon theatre, and by whom an officer cohabiting with her, received such a phagedenic ulceration as nearly destroyed the penis, while the girl continued to infect others, and pursue, without interruption, her particular avocation.* It may certainly be conjectured, that this lady could not have been labouring under asphagedenic ulceration, else we cannot explain how she went on receiving the visits of her lovers, and figuring upon a stage; but the history is incomplete, in as far as we are not assured that the infection was alone derived from her, nor if so, what was the nature of her disease.

Many instances have been related, in order to show the variety of effects produced in different individuals receiving infection at the same source; and thence to prove, that one primary sore may impart another of a dissimilar kind. While we assent to the general conclusion, we acknowledge that, to our mind, no reliance is to be placed on such evidence, on account of the imperfect manner in which the examinations have been conducted; nor till it can be shown satisfactorily, by a series of careful trials made in a way we could point out, what is the state both of those giving and those receiving the disease; and again, that no other chance of infection has been afforded,—is any decision in this way to be formed. Mr Evans, in his essay on ulcerations of the genital organs, has forcibly pointed out between the infected and those communicating the infection a remarkable difference, which would tend to show how little influence any form of disease has in propagating another of a similar character. This gentleman attended the examinations of the women in France, as ordered by the police, and was struck at their great exemption from disease; while the soldiers who mingled with them gave abundant testimony of the nature of their association. "At one (examination) which I attended, no less than 200 women of the lowest description,* and of course, the most frequented by the soldiers, were examined, and not one case of disease was found amongst them; nevertheless the military hospitals had, and continued to have, their usual number of venereal cases (ulcerations). At an inspection I have since attended where 100 women were examined, only two were found with ulcerations. I noticed several with increased secretions, and one with purulent discharge, but these were taken no notice of by the attend-

* Medico-Chirurgical Transactions, Vol. iv. p 1 and 3. London, 1813.

ing surgeons, as they did not come sufficiently under the head of virulent gonorrhœa. That the two women above-mentioned as having ulcers, infected the whole of the men diseased in garrison during the preceding fifteen days, no one can for a moment admit as likely; but if it be allowed that an altered secretion be sufficient for the production of this disease (the elevated ulcer he is speaking of) we shall at once have an explanation of how it happened that the military hospitals continued to have their usual number of venereal cases." From this it might be inferred, that some ulceration in the male organs of generation may arise from an altered secretion merely in the female,—an opinion to which, in the meantime, we are not inclined to subscribe.

In considering the question of the plurality of poisons, it is right to inquire if there are any other circumstances which may explain the variety in the character of sores, arising out of the application of the venereal virus. It has never appeared to us that the constitution and peculiar habits of life of those in whom syphilitic sores occur, have been allowed the influence they have in determining the primary forms of the affection; and while, in ordinary ulcerations, these causes, ever since the appearance of the writings of Mr Abernethy, have received their due share of attention, they have been almost excluded in the disease under consideration. We can only explain this extraordinary fact, by attributing it to the idea entertained by most men, that every thing connected with syphilis must necessarily be of a specific nature; —an idea which, I dare to assert, has done more than any other, both to retard our knowledge, and lead to a ruinous system of treatment. On the point now mentioned, Mr Carmichael observes—"I am perfectly aware how much the state of the human constitution will modify local diseases, and am willing to attribute to a certain extent the great variety of appearances we witness daily in venereal complaints, to this cause alone. But we observe that many of these primary ulcers evince, from their very commencement, such peculiar and distinct characters, that it would be quite an absurdity to believe that the virus is always the same, and the variety of characters dependent alone upon the constitution." Mr Rose, who seems to favour the doctrine of the plurality of poisons, admits, that it is by no means settled, how far the variety in the symptoms of venereal cases is to be attributed to different poisons, or how far the symptoms of the same poison may be modified and altered by the causes we have mentioned. The influence of these in altering the local condition of a sore which has been once established is so abundantly proved by daily observation as to be admitted by every one; but what share the same causes have in determining

the form of ulcer at its first breaking out seems as yet to have escaped observation.

The question may then be put, whether any peculiarity in the habits of life will enable us to account in one person for a simple, in another for a sloughing, or in a third for an indurated chancre; supposing that all three were exposed to only one source of infection. Now, it is not by examining the state of an ulcer after it has some time existed, and when improper treatment, neglect, dissipation, and other circumstances have brought it into certain conditions, but it is by attentively considering the operation of constitutional causes in giving the first character to the sore, that we are to decide the question, whether the variety is to be explained by these causes, or by any peculiarities in the venereal virus itself.

In the *first* place, when we turn our attention to the manner in which the venereal poison seems to take effect, we can scarcely refuse to admit that the system is more intimately concerned than is generally supposed. A man, we shall say, has had a connection with a diseased female from whom he contracts syphilis; not till four or five days have elapsed, commonly a week, and frequently longer, does the local ulceration, however, break out. The ulceration does not ensue from the morbid poison causing immediate inflammation and its consequences; for, from the application of the syphilitic virus to the parts, till the breaking out first of the primary disease, there is no local disturbance; the individual may expect no mischief to ensue; and not unfrequently he continues to have connection with other females during this period as it were of incubation. The very earliest commencement of the diseased action seems, therefore, to be a complex operation, in which the constitution participates; and if it can so powerfully alter the condition of a sore after it has been fairly established, we may allow it some influence in determining likewise what its first character shall be. We, of course, admit, that the venereal poison possesses a local action on the parts with which it comes in contact. We have been in the habit, indeed, of considering its action, both constitutional and local; for, without the former, we cannot explain the length of time which elapses between the receipt of the infection and the first appearance of disease—a complete absence of all unhealthy action; while, without the latter, we could assign no reason why the primary affection should appear on the organs of generation, nor why it should occupy different situations in these organs.

Secondly, A curious coincidence is observed with respect to the origin of all primary venereal ulcerations, in cases where no excoriations had been present at the time of infection. The coincidence we allude to is the uniformity in the mode of attack

—the simple, the excavated, the sloughing, or phagedenic sore, all commencing in one common way—viz., by a pimple, or pustule, from which the work of devastation proceeds. We do not find the mildest or worst species of chancre having any other origin than this;—we do not witness the sloughing variety at once commencing in destructive ulceration; but we have first a pustule, in the centre of which the ulcer forms, and from which the future local mischief ensues. If we are called on then to observe that the different species of sores have one common origin, is it unfair to conclude that they have also one common cause, acting only in the peculiar temperament of the individuals? or, did there exist a variety of causes, such as a plurality of venereal poisons, why have we not an equal variety of immediate effects?

Thirdly, We argue that the peculiar condition of the system (for we have no more definite way of expressing it,) is the principal, if not sole agent, in giving the first character to the venereal sore; for the reason, that sufficient time is allowed for such changes to take place after the appearance of the pustule. If we take, for example, the worse species of sore, the sloughing chancre, as seen in prostitutes, we find that a considerable period intervenes between the first breaking out of the disease, and the work of destruction; and, when we cannot have a shadow of doubt how much the constitution influences the local disorder. As Sir A. Cooper* has well expressed it—"If you inquire into the history of the case, you find that it first begun by a few pimples. The unfortunate female will also tell you, that she continued to walk the streets, night after night, exposed to vicissitudes of temperature,—that she indulged in the use of spirituous liquors in order to support her declining strength. The disease thus occurring in a constitution destroyed by irregularity of habits, the patient has but a slight chance of recovery." Neither, as we have said, does it seem to correspond with what we observe of the sloughing chancre, that one sore propagates its own kind, and none else. In the case already related of the opera dancer and the officer, there is little probability that the former imparted such a sore as the latter laboured under, and yet could have continued her professional duties, as if nothing had ailed her. We have never, for our own part, been able to conceive how connection could go on under such circumstances,—we mean, where either party is the subject of a painful ulceration; and when to this we add the consideration, that these sores are met with, generally, in constitutions broken down by habitual dissipation, want of nutriment, or irregular hours, we think there

* Lectures on Surgery.

is more justice in referring their occurrence to such sources, than to any difference in the nature of the morbid poison.

Fourthly, The character of a syphilitic sore is often acquired merely from the texture or situation in which it is placed. Those primary ulcers affecting the skin only are seldom irritable; while those extending to the cellular tissue have usually a tendency to slough. Again, a sore in different parts of the same tissue will assume a different character, according to its seat. Thus, an ulcer on the fore-part of the *glans penis* is commonly of a simple kind, while one about the frænum has as generally a disposition to spread; and it is in this latter place that we find these sores arise, which prove destructive of the *glans penis* itself. We have likewise repeated opportunities of witnessing sores of different kinds, occurring at the same time, and acquired by the same intercourse. In this way it happens, that we have a simple and a sloughing sore, or a simple and an indurated sore, or a sore one part of which is indurated and the other not, taking place together in one individual. If the character of a primary sore was derived from any thing peculiar in the virus which had produced it, how can we explain the circumstance that it varies so frequently according to the situation in which the sore is placed, and particularly when affecting only different parts of the same texture. Neither do we profess to understand, in the hypothesis of one sore propagating another only of its own kind, why a variety of these should be found in one individual after the same connection; unless we are to suppose, that the person communicating the infection was impregnated with different animal poisons;—a supposition not warranted by the known laws of some others. We might here stop to inquire how far the poisonous secretion from a chancre is a mere local or constitutional change; but the subject is one of great difficulty, and could not be discussed within a narrow compass.

Lastly, We shall remark, that the venereal disease, as admitted by all, arises from the introduction of a specific animal poison, and may, therefore, be subject at least to some of the laws which regulate diseases engendered in a similar way. We know that the poison which constitutes syphilis differs from all others in its known effects upon the animal economy, else we should be unable to distinguish its attacks. It is unlike that which induces hydrophobia, because it neither has the same origin, or the same termination; neither is it similar to that which occasions small-pox, because its mode of operation is different, and it will return again and again as long as we expose ourselves to its infection; but yet we observe that, as in these, some individuals, equally laid open by external causes to its influence, will escape with impunity; and hence we conclude,

that the venereal virus is under the control of the system, although in a manner at present unknown to us. We are aware that Mr Carmichael has taken up the unchanged and unchangeable properties of other eruptive diseases in defence of his doctrine, and has insisted that syphilis should follow the same regular order; but he has passed over in silence the characteristic distinction of the former occurring but once during life, and therefore the necessity that exists for their being more regular; and, likewise, omitted to notice the frequent modifications they undergo during their attack.

On this point, Mr Bacot observes*—"With regard to the cow-pox any thing but uniformity is found, or why so many contests as to what is or what is not a genuine pustule. Is it not notorious that a delay of one day only, by substituting matter for lymph, will derange the whole train of phenomena, and produce a disease neither similar in appearance, nor equally powerful in its effects? In small-pox is there no difference between the confluent and distinct sorts? Suppose a person to whom the disease was totally unknown, were first introduced to a patient labouring under the last stage of this loathsome distemper in its confluent form, the face and body bloated and covered with black scabs; a horrible fœtor issuing from the whole body; the eyes closed, and perhaps lost by suppuration; abscesses in various parts; the sufferer delirious, and parched with fever in its severest form; and then let him contrast this spectacle with that of a person who has fifty, or perhaps an hundred small pustules over his body, with but trifling derangement of the general health, and no other symptom denoting disease, and you would scarcely be able to persuade him that both these patients were labouring under one and the same disease; and yet nothing can be more true—nay, it is perfectly possible, that this very mild disease may have been directly propagated from an inoculation of the former."

It is needless to multiply examples of diseases, which every practical man knows, to be not only modified by idiosyncrasy of constitution, but also by inferior circumstances, as temperature, season of the year, and others which have probably no control over the propagation of syphilis. It were likewise superfluous to allude farther here to the influence which the constitution or habits of life have over primary ulcers; our object being merely to show that both the formation and character of these sores depend on laws peculiar to the animal economy, and that the doctrine of the plurality of poisons is wholly inadequate to answer the ends for which it was designed. In fact, as far as the appearance of primary sores could be connected with the

* Treatise on Syphilis.

notion of a distinct poison for each, we should have to admit a great many more than at present allowed, for we meet with greater varieties than it is necessary to describe.

Before quitting this part of the subject, there is one point to which we may refer, and which has often intruded itself during our investigations on syphilis, which is, that the morbid poison may differ in intensity or virulence, according to the local condition of the sore, as well as the habit of body of the person by whom the infectious matter is furnished. Thus an ulcer which is healing, we would naturally suppose, does not furnish such a highly morbid fluid, as one in an irritable or sloughing condition; and hence we deem it not unlikely that different states of intensity of the virus may contribute something towards producing the varieties observed in the primary forms of venereal ulceration. We have of course at present no direct evidence that morbid poisons possess various degrees of virulence proportionate to the activity of the disease from which they have sprung, although the idea is extremely probable; nor until more accurate information is obtained, do we more than suggest it as a means of assisting to account for some of the phenomena of syphilitic affections.

II. We proceed now briefly to discuss the remaining question; Is each primary sore connected with a definite set of secondary symptoms, and with no other?

Mr Carmichael distinguishes four kinds of primary ulcers, to each of which he allots a corresponding set of secondary symptoms. The first order he designates is an eruption of *papulæ* on the skin, ending in desquamation, pains in the joints, soreness of the *fauces*, without nodes on the bones;—the primary symptom being a simple sore without any induration, raised edges, or tendency to slough, but sometimes also caused by patchy excoriation or virulent gonorrhœa. The second species consists of pustules terminating in mild ulcers, pains in the joints, ulceration of the throat, but without nodes; and this secondary train, as far as could be traced, was preceded by a primary sore, with elevated edges, without excavation, having a reddish-brown surface, and either upon a level with, or rising above the neighbouring parts. *Thirdly*, an eruption attended with spots having less of the pustular character than the last, accompanied with tubercles from which sores are formed, spreading generally with a phagedenic edge and healing in the centre, accompanied with extensive ulcerations of the throat, and especially the back part of the pharynx, pains in the joints, leaving nodes, and often affecting the bones of the nose;—the primary symptom being the phagedenic or sloughing ulcer. *Fourthly*, the scaly eruption, lepra or psoriasis, or true syphilis, deep ul-

cers of the tonsils, pains and nodes in the bones;—the primary symptom being the real Hunterian chancre or excavated ulcer, with indurated base. Had Mr Carmichael been able to trace the connection between the first and second set of symptoms as now detailed, and had further experience confirmed the truth of his observations, then the inference would have been just, that there being four orders of diseases, all distinct from each other, there must necessarily be four varieties of the venereal virus to account for these. But should we be able to show that the combination of any two orders is not so invariably true as to authorize us to form any conjecture as to these causes, then doctrines founded on the strength of such uniformity must fall to the ground; and here we may remark, that the majority of writers, and even those otherwise favourable to Mr Carmichael's views, withhold their testimony from this part of his writings.

If the theory of the plurality of poisons is not proved by the circumstances attending the formation of primary sores, it has much less chance, we fear, of being substantiated by any appeal to the regularity in the occurrence of the secondary symptoms. We have both the most abundant and valuable evidence we could wish respecting the constitutional effects resulting from every species of chancre; and we are prepared to prove that no uniform order between these is observed. The greatest regularity is perhaps found in the simple syphilitic sore without any specific local character, and which is generally followed by a papular eruption on the skin and slight sore throat; but with this exception, which every practical man will admit, no other connection between the first and second order of symptoms can be discovered. We find that the same form of ulcer gives origin to different kinds of secondary symptoms; nay, more, that the same sore will be succeeded by one set and then another of cutaneous diseases; and so far do these remarks hold true, that we cannot predict from the primary ulceration what will be the nature of the constitutional effects. Again, it not unfrequently happens that two different sets of cutaneous affections will immediately follow one sore. Thus we have sometimes a scaly and a tuberculated state occurring together, a true syphilitic eruption with a phagedenic ulceration in the same individual; and at the same time, in like manner, we may have a mixture of papulæ and pustules, and, in short, the various appearances are much more blended together, than Mr Carmichael seems willing to admit.

A strong proof of the correctness of these statements may be found in the circumstance, that several inconsistencies are to be traced in the work of the gentleman to which we have had occasion so often to allude; for it is admitted, in one part, that the papular eruption may be mixed with pustules which form

thin crusts instead of desquamating, that the pustular eruption may exhibit *papulæ* interspersed among them, and in one instance related of a phagedenic sore, the secondary symptoms appropriated to the raised ulcer, are detailed. These facts impress us strongly with the notion, that Mr Carmichael found great difficulty in reconciling himself at times to his own theory, while the uncertainty he entertains respecting the eruption following the raised ulcer, and the hesitation with which he assigns to it a pustular form of disease, point out a compulsion of arrangement upon which his practical experience must have occasionally made him recoil.

With respect to the consequences more particularly arising out of the different forms of primary ulceration, the pretty regular occurrence of *papulæ* after the simple sore, is confirmed by the statements of Mr Rose and others. Between these and pustules, however, there seems often but a slight shade of distinction. They are frequently blended together in the same case, and only a little brisker inflammatory action of the skin is wanted to convert the one into the other. Mr Carmichael does not limit the papular eruption to one source alone, but adds, that patchy excoriations on the *glans penis*, and virulent gonorrhœa, are likewise followed by it—an opinion which, unless he considers the virus of the simple sore and gonorrhœa to be one and the same, must invalidate his doctrine of each set of eruptions having a specific origin. As respects the raised ulcer, he seems in great doubt of its secondary effects; but as far as he has been able to observe of the pustular eruption, it seems to be attributable to this sore. The Hunterian chancre being the true syphilitic disease, we find it of course followed by the scaly, lepra or psoriasis.

Before we proceed further, let us contrast these remarks with the evidence of the late Dr Hennen, whose experience and sound judgment will be admitted by all. This gentleman* informs us that particular eruptions are not confined to any particular kind of primary sore, for he has found those of the same nature and character succeeding the foul, indurated, excavated ulcer, and likewise the simple excoriation. Speaking of the Hunterian chancre, he relates, that in fifteen cases where no other symptoms occurred, and caused the eruptions, six of these were tubercular, five exanthematous, two pustular, one tubercular and scaly, and one tubercular and vesicular. In four more cases, following the same primary disease, but where an affection of the throat was likewise present, the eruptions were in two cases tubercular, in one tubercular and scaly, and one was

* Hennen's Military Surgery.

tubercular and exanthematous. He relates a case in which a Hunterian chancre was followed in ten weeks by a papular eruption, which was cured without mercury in about a month. Two months afterwards, and without any fresh infection, a second eruption of a similar kind broke out. This was treated with mercury for five weeks; slight salivation took place, the eruption faded, but during its progress it assumed the appearance of vesicles and pustules, which fell off in amber-coloured scales with livid bases. Ten weeks afterwards the patient was a third time admitted without any intervening primary affection, with a pustular eruption, which was cured without mercury, and the pustules fell off in squamulæ. In another month he was again taken in without any fresh infection, having more numerous, smaller, and acuminated pustules, which yielded to the non-mercurial treatment. Although this case is given by Dr Hennen to prove the inefficacy of mercury in preventing the relapse of secondary symptoms, we have quoted it to show the variety of effects resulting from one form of primary sore, and that a scaly eruption does not always succeed the indurated chancre. In twelve cases following the non-Hunterian sore, where eruptions alone took place, six were pustular, three were exanthematous, and one was tubercular and scaly. In seven cases, where sore throat was likewise present, three were exanthematous, two were tubercular, one was papular, scaly, and tubercular, and one was pustular and tubercular.

Neither is the sloughing ulcer succeeded by any uniform train of secondary effects. In fact this sore, in its very worst shape, is seldom followed by any constitutional symptoms, as even Mr Rose admits, and who seems in doubt whether the degree of *erethismus* excited by the local action, should be attributed to any peculiarity in the morbific matter, or to the peculiarity of the constitution. The usual reasons assigned for such sores being less frequently followed by constitutional signs, is the violence of the local action being so great, that the parts slough away, and sufficient opportunity is not afforded for the absorption of the morbid virus. We have always held this explanation erroneous, and for several reasons; *first*, because the absorption of the poison in every instance takes place immediately after its application, and is independent of subsequent ulceration; *secondly*, because no local mischief ensues for some days after the receipt of the infection, and during which time the poison must have escaped, as in any other case, into the system; *thirdly*, because the sloughing sore at first appears in the ordinary form assumed by all others, and acquires its disposition to extend from the depraved habit of body in which it is found; *fourthly*, because any sore whatever may be brought

into a sloughing state, from whatever tends to injure the general health; and *lastly*, because constitutional symptoms do occur after the worst variety of this species of sore, where the greatest amount of sloughing has ensued.

Mr Carmichael has conceived that his doctrine receives support from what happened to the British army when in Portugal, where the primary destruction was great, and the secondary effects likewise severe; but here he is met by Mr Guthrie, who has shown the true cause for the ravages of the disease.* This gentleman does not consider that Mr Carmichael's opinion, as to the secondary symptoms peculiar to the phagedenic and sloughing ulcer, receives any support from what occurred to the troops in Portugal; "because," says he, "it did not appear that either of them, following sexual intercourse, were dependent on the cause which produced the ulcer. Where many men had intercourse with the same woman, and with no others, they have not all had the same complaint, although one of the ulcers so originating has become phagedenic or sloughed; neither has the same woman herself suffered from this distemper. Indeed, the nature of an ulcer of either kind must, after a short time, effectually prevent any intercourse; and we often find that their peculiar characters only appear after the ulcer has existed for several days. I firmly believe also, that in the greater number of cases of sloughing ulcer, where mercury is not given, no secondary symptoms would appear; and in those cases in which they did appear, I apprehend, they would be equally dependent on the state of the constitution, as to the mode of cure, and their destructive characters In other words, my observations lead me to conclude, that those ulcers *do not depend upon a specific poison, but on the state of the constitution under particular excitement;* and that when secondary symptoms do occur, they are not dependent on the state of the ulcer; although I am ready to admit, that, in a constitution where an ulcer will readily become phagedenic, the secondary symptoms, when they occur, may be different to a certain extent from those that follow more simple ulcers, in a healthier habit of body."

In this passage, Mr Guthrie expresses his opinion, that phagedenic sores do not arise from a specific poison; that they depend on the state of the constitution; that the secondary symptoms do not spring from the nature of the ulcer, and that they seldom follow, unless mercury has been exhibited. When we reflect on the broken down, and often artificially supported system in which these sores appear, we have no hesitation in believing with him, that the primary, as well as secondary, effects are strictly constitutional; and although we grant, that mercury improperly used will cause a sloughing sore to spread, we do

* Medico-Chirurg. Trans. Vol. viii.

not allow, that, unless where it has been adhibited, no secondary symptoms need be apprehended.

It yet remains to be proved how far certain habits are not liable to contract certain forms of sores, whatever might be the nature of the infection they are exposed to, and in which, the occurrence of the same species of ulceration in one individual, furnishes strong ground for believing. The comparison of this liability with the immunity enjoyed by others from the disease, and of both of which we have known several remarkable instances, would form a subject of intricate but useful inquiry. Mr Rose has related a case of a young man of healthy constitution, who had three phagedenic sores after separate connections, and at considerable intervals; and where, as he allows, it is not likely they arose from any peculiarity in the poison; and when again we contrast such an example with that of Dr Good's friend, who, for the sake of experiment, exposed himself to the infection of the lowest prostitutes, and yet escaped with impunity, we must feel the more satisfied, that the local application of any virus is inadequate to explain even the occurrence of primary syphilitic disease.

Were any further evidence required to show the want of connection between the first and second order of symptoms in syphilis, we might refer to the official circular issued at the Army Medical Board, where it is stated, amongst other general remarks, with which the document concludes, that no particular secondary symptoms could be traced to any particular primary sore. That no sort of connection between these is established must, we think, be obvious to every one who has seen much of syphilitic diseases; and were any such thing existing, it is easy to show, that, in many cases, effects totally opposite to what are expected, ensue. How often have we seen a simple sore, which has shown no irritability, and remained for a length of time in a quiescent state, brought by neglect and dissipation into a foul sloughing condition; and then, during the healing of the sore, should it have been extensive, or after it has healed, and while the general health is below par, a pustular or tubercular eruption breaking out in the skin; deep ulcerations in the throat; with hectic fever and rapid emaciation? How frequently does it happen that the worst consequences thus ensue on a simple sore, and induced too by the ruinous condition into which the system is brought by a severe and protracted course of drinking? Now, if we analyse such a case, we find that it was at first a simple sore, and might have continued so from beginning to end, but from accidental occurrence; the virus which induced this sore should have been followed by a papular eruption; for, according to the doctrine of the plurality of poisons, a specific cause gives rise to a specific effect; yet it so happens,

that the general health being destroyed, we have a new order of secondary disease established; and to produce which an inoculation with another species of poison ought to have been required; in short, we have an infection, which should have ended only in a few *papulæ*, bringing on a succession of symptoms totally unconnected with it, and for which, we suppose, it is not to be rendered accountable.

We do not mean, for the present at least, to inquire into the pathology of syphilis, or its mode of propagation; but if the constitution has so little power in controlling its effects, why, may we be permitted to ask, do not secondary symptoms invariably appear; for they constitute an important part of the disease, and without them, it cannot be reckoned complete? The morbid poison has been applied, and taken effect; as evinced by the primary changes; yet secondary symptoms only result in certain cases. If every sore, as we are told, has its proper virus, can propagate its own kind, and produce its own secondary effects, does it not appear singular, seeing the constitution dare take so little interference, that such effects do not constantly and uniformly succeed? We cannot explain away this by reference to other eruptive diseases or morbid poisons; for where there is no constitutional idiosyncrasy, we are taught that the noxious agent which creates measles, or scarlet fever, or the matter of hydrophobia, or small pox, if duly applied, will induce their wonted effects; but yet the virus of syphilis, when fully introduced, fails in many cases to produce its own phenomena. In studying the history of exanthematous diseases, we allow every thing for peculiarity of constitution; but in syphilitic eruptions, this has been almost totally overlooked. For our own part, whatever doubt may still be attached to the appearance of primary sores, the last few years have convinced us, that secondary symptoms are to be alone attributed to the habit of body in which the disease has occurred, conjoined, of course, with the presence of a morbid poison in the circulation. The circumstance of these symptoms frequently not appearing till after the local ulceration has long been healed up, and when the influence of any external cause must have ceased to operate, is sufficient to show us how far they are dependent on the constitution. Accordingly, we have found, that whatever tends to fortify the system, till the virus shall have exhausted itself by length of time, is the surest method of both warding off, and lessening the severity of the secondary effects; while, on the other hand, whatever impairs the general health, as late hours, dissipation, and irregular living of every kind, paves the way for an attack of the worst forms of the disease. It is more from such causes also, than from any particular line of treatment adopted, that we find these symptoms disappearing under the use of remedies,

and reappearing on their omission. "After these accounts," says a modern writer, "I can have no hesitation in coming to another conclusion, which is, that, with the exception of a partial confirmation of Mr Carmichael's doctrine by Mr Rose, as far as relates to the frequency of papular eruptions after superficial primary ulcers, the regular connection of particular forms of secondary symptoms with any given description of primary sores, is so far from being supported by the testimony of other observers, that one kind of primary ulcers may lead, in the same patient, to eruptions of several different sorts, either existing together on various parts of the body, or breaking out in succession; and no regular connection can be traced between any species of primary sore, and any one determinate class of secondary symptoms. These truths, I believe, must be admitted, disadvantageous as they are to the prospect of bringing the diagnosis of syphilis to a final settlement, so as to enable the writer to describe the disease with accuracy, and the practitioner to recognize and treat it with certainty. The first essential step to the elucidation of this subject, however, is undoubtedly the subversion of every doctrine relative to it, which is repugnant to general experience. The same facts which may render it necessary for Mr Carmichael to retract some of his inferences, and which have now been established beyond all doubt or possibility of successful contradiction, by the very impartial, disinterested, and extensive investigations, made in the army hospitals, would have obliged even Hunter himself, had he been alive, to confess the mistaken views which he sometimes took of the nature of the venereal disease."

Who will be able to unravel all the mysteries connected with this subject, does not remain for me to say. It is always easier to show any doctrine to be unsound, than to offer another and more satisfactory one in its stead; and if Mr Carmichael has failed in his attempt to simplify the diversified effects of syphilis, and reduce them into lucid order, the ingenuity and research he has displayed must call forth the warmest approbation of his labours. Nothing short of experimental investigation, conducted on an extensive scale, and in such a way as to avoid the possibility of error, will ever set aside the difficulties we are at present struggling against. Nor can we conclude better, than by recommending to a higher quarter a suggestion made by the gentleman whose name we have recently mentioned, "that it might be a benefit to society if criminals were sometimes permitted to commute a heavier punishment by submitting to such experiments, without which the inquiry into the reality, number, nature, and effects, of the morbid poison under consideration, can perhaps never be brought to a satisfactory termination."

PART II.

CRITICAL ANALYSIS.

ART. I.—1. *Essays and Orations, read and delivered at the Royal College of Physicians; to which is added, an account of the opening of the Tomb of King Charles I.* By SIR HENRY HALFORD, Bart., M. D., G. C. H., President of the College. 2d. Edit. London, 1833.

2. *On the Death of some eminent Persons of modern Times.* By SIR HENRY HALFORD, Bart., G. C. H. London, 1835.

THE means by which the success of a physician can be most securely promoted have often been the subject of inquiry and speculation. Talents with one, manners with another, connections with a third, have all, in their turns, been referred to as prime agents in establishing his character; but still there is much truth in the discriminating observation of Johnson, that the reputation of a physician is for the most part totally casual; that they who employ him, know not his excellence, they that reject him, know not his deficiency. The late Dr Baillie, and the author of the Essays and Orations before us, divided, in a greater, and more equal degree than any of their predecessors, the good opinion and favour of the public, from a comparatively early period of life. But no men differed from each other more in character and manners. The former, with somewhat of a stiff and cold exterior, to which our northern dialect gave, with many an appearance of roughness and want of polish, established at once, in the minds of his patients, the highest claims to strong good sense, great precision of intellect, and an earnest professional interest in their cases. But in the physician, was soon found the genuine and warm-hearted sympathy of the friend; and if in his ordinary professional communications Dr Baillie did not always display the *suavis morum humanitas*, ascribed in these essays to the elder Warren, no one exceeded him in the good taste and happiness, of the addresses which he was occasionally called upon to make to his patients, or their friends, and which exhibited an eloquence peculiarly his own.

Sir Henry Halford, on the other hand, was always fascinating. His manners were invariably pleasing and polished, and no one

could see him with a patient, without feeling sure of the confidence which he would inspire. But confidence can only be once gained; and it is a high compliment to the judgment of Sir Henry, and to his consummate knowledge of the world, that his attentions, though the exercise of them must have often been of the most fatiguing description, were as incessantly, as they were judiciously and acceptably applied.

Dr Baillie was a fair, but not a brilliant scholar; but Sir Henry Halford's classical attainments are of a superior order; and he never, either in his ordinary conversation, or in his writings, for a moment loses sight of the great, and perhaps we may venture with all humility to say, somewhat undue value which such sort of acquirements possess in England.

The first two essays, namely, that on climacteric disease, and that on the necessity of caution in the estimation of symptoms in the last stages of some diseases, were published subsequently to their delivery, in the 4th and 6th volumes of the Medical Transactions.

We shall therefore pass to the third, which is on the subject of *Tic douloureux*. This formidable and stubborn disease, the author is disposed to regard as connected, either with some preternatural growth of bone; with deposition of bony matter in a part when it is not usually found, or with diseased bone. A lady of 60, whose attacks were always preceded by a tenderness in one particular tooth, which exhibited however, no appearances of decay, was cured by the extraction of the tooth, when a large exostosis was found at its root. The Duke of S. seemed to be cured of the disease by the exfoliation of a portion of bone from the antrum. Another nobleman suffered martyrdom by the disease, and at length had an apoplectic seizure, after which the paroxysms became less severe. He had repeated exfoliations from the alveolar processes; and Sir Henry is disposed to think, that the apoplexy might have disqualified the nerves for suffering so exquisitely, and that there might have been some osseous affection in the cranium, at once the cause of his tic douloureux and his apoplexy. No examination was, however, made after death.

The late Dr Pemberton died of apoplexy, after having been for many years afflicted with *tic douloureux*. There was found to be an unusual thickness of the *os frontis*; and in the falciform process of the *dura mater*, at a little distance from the *crista galli* a small osseous substance was found, of about three-eighths of an inch in length, rather less in breadth, and about a line in thickness.

In a lady of 65, who died apoplectic, after suffering from the disease for ten years, and who had, during that time, taken 27

pounds of carbonate of iron, and as much valerian, an enormous thickening to the extent in one part of half an inch, was discovered, of the frontal, ethmoidal, and sphenoidal bones, with general thickening of the cranium, though to a much less degree than in the bones just mentioned.

The paper is concluded with some instances of sympathy, of which the production of epilepsy by an issue is one, in which Dr Darwin removed the disposition to that disease by taking away the pea.

Essay 4th is entitled Popular and Classical Illustrations of Insanity.

Sir Henry's speculations seem to have originated in a consideration of that proof of sanity which Shakspeare ascribes to Hamlet, when he says,

> ——————— bring me to the test,
> And I *the matter will re-word, which madness*
> *Would gamble from.*

In proof of the correctness of this test, Sir Henry relates the case of a gentleman of large fortune, of the age of 35, who sent for a solicitor, with whom he was in habits of strict friendship, to make his will. After directing some judicious and liberal arrangements, he intimated his wish, that in case of his dying childless, his friend the solicitor should be his heir. But to this the solicitor, with much disinterestedness, objected, unless, as a proof of the arrangement being the result of the deliberate judgment of his friend, he continued of the same opinion six months subsequently.

In six weeks the gentleman became deranged, and to such an extent as to require constant coercion. He continued so for a month, when he became quite calm and collected, and expressed a very strong desire to make a will. He gave instructions to his solicitor to the same effect as before the attack of insanity came on, and sanctioned the correctness of the arrangements in the presence of Sir Henry Halford and Sir George Tuthill, by assenting to every item as specifically and deliberately proposed to him. So far the business went on satisfactorily; but on leaving the room it occurred to Sir Henry to propose going again into the sick man's apartment, to see whether he could *re-word* the matter, as a test, on Shakspeare's authority, of his sanity of mind. He repeated the various clauses pretty correctly; but on being asked to whom he had left the property, in case of dying without children, he answered, "To the heir-at-law to be sure;" and on being further questioned who that was, he replied, "I do not know." The result may be anticipated, that he was considered as having died intestate; but the

heir-at-law very liberally and properly carried into effect the disposition ordered by him relative to his mother and two natural children, to the amount of more than L. 30,000.

Of the solicitor, who might, if he pleased, have availed himself of the first offer in his favour, Sir Henry speaks in high terms of commendation; but we trust that he had some solid marks of approbation from those who so much benefited by his disinterestedness. Sir Henry instances some peculiar and well-described characters of insanity from Horace.

The 5th Essay is on the Influence of some of the Diseases of the Body on the Mind.

Sir George Baker treated with much elegance of the effects of some passions of the mind on the body; and Sir Henry Halford thinks that much interest may be made to attach to an investigation of the operations of many affections of the body on the mind. He exemplifies the contrast which indigestion and a slight inflammation of the brain have in their influence on the mental powers. "The former," he says, "renders a man irresolute, infirm of purpose, and both indisposed and unequal to enterprise of any kind; whilst a slight inflammation of the brain gives sharpness to the faculties, inspires spirit, quickens ambition, and leads him to believe, like Hotspur, that he can

"Pluck bright honour from the pale-faced moon."

We doubt, however, whether these two complaints can be correctly contrasted. Perhaps a slight inebriation might, in some constitutions, bring out the feelings which Sir Henry would exemplify more readily than a state of body which is very rare, and which, when it occurs at all, must, in all probability, very soon become serious and alarming.

He exemplifies the effects of apoplexy and palsy on the body; and considers the epileptic disorder with which Julius Cæsar was occasionally affected, as indicative of an oppressed stomach, and not of its usual concomitant, organic disease in the brain.

Sir Henry adverts to the cheerful prospects with which young female consumptive patients are often enlivened; and contrasts them with the gloomy despondence which frequently attaches to the disorders which come on after the sexual peculiarity has ceased, as if, in the former case, the brain were "unusually stimulated," by the blood being "more oxygenated" by the "rapid circulation through the lungs," than in the latter, when there is a "stagnation in the liver, giving rise to hypochondriacism, in consequence of the more gorged plethoric state of the ventral and hæmorrhoidal veins determined to that organ."

Mere pain "does not affect the mental faculties," nor often produce great dejection; and "its pauses and intermissions,"

as Paley says, " become positive pleasures." If among the ancients it was regarded as a sufficient reason for committing suicide, the Christian has higher motives than they possessed for taking his sufferings patiently.

Sir Henry has been often surprised that so few appear reluctant to meet death, though some he has known cling anxiously and powerfully to life, not for its own sake, but for those whom they were to leave behind.

Sir Henry offers some observations on the delicate point of mentioning to a patient or his friends, the existence of danger to life, principally with a view to notice the steps which he took in the latter part of the illness of his late Majesty George IV.

" Bulletins," he observes, " respecting the health of a sovereign, differ widely from the announcements which a physician is called upon to make in humble life, and which he entrusts to the prudence of surrounding friends. These public documents may become known to the royal sufferer himself. Is the physician, then, whilst endeavouring to relieve the anxiety, or satisfy the curiosity of the nation, to endanger the safety of the patient; or at least his comfort? Surely not. But whilst it is his object to state as accurately as possible, the present circumstances, and the comparative condition of the disease, he will consider that conjectures respecting its cause, and probable issue, are not to be hazarded without extreme caution. He will not write one word which is calculated to mislead; but neither ought he to be called upon to express so much as, if reported to the patient, would destroy all hope, and hasten that catastrophe, which it is his duty, and their first wish, to prevent."

In the case of his late Majesty, we are informed, that the King's Government and the royal family were apprized, as early as the 27th of April (his Majesty dying on the 25th of June) of his danger from disease of the heart, and probable effusion into the chest. About the latter end of May, his Majesty, at his own particular request, was informed by Sir Henry of the extent of his fear for his safety. His Majesty soon afterwards took the sacrament; and having " set his house in order," Sir Henry thought it important to smooth the bed of death, by interpreting, as favourably as he could, every new symptom as it arose, so that his Majesty was spared the pain of " contemplating approaching death" until a few minutes before he expired.

Essay Sixth, on the καυσος of Aretæus; the Brain Fever.

After the first symptoms of this, the burning fever of Hippocrates, have subsided, the patient's mind is represented as becoming clear, and his sensations keen. He discovers that he is about to die, and seems to hold converse with the dead, and to exercise a prophetic power, which Aretæus attempts to account

for, by supposing "that the soul, while disengaging itself from the incumbrance of the body, becomes purer, more essential, entirely spiritual, as if it had already commenced its new existence."

That a prophetic power generally attends the dying period, was a notion entertained of old, and has been transmitted down to us from the earliest records; and Sir Henry adverts to numerous instances, both in the sacred and profane writers, in which there seemed to have been such a power exercised at the close of life. Setting aside the examples derived from inspiration, he is disposed to refer much of what occurs under such circumstances, to the clearing up of the intellectual faculties in the last hours of life, when the passions have ceased to embarrass the mind, and to interfere with the inferences derived from its unbiassed experience, just as in the sense of Milton's lines.

> "When old experience does attain,
> To something like prophetic strain."

Essay Seventh is on the Treatment of Gout.

The author states, that he has seen this disease "in the kidney, urethra, and prostate gland, and in the tonsils; and there is none," he tells us, "in which he prescribes with so much more confidence in the resources of the art." His dependence is on the colchicum in the form of wine; and he has never seen produced from this medicine, either the purgative or nauseating effects, which often arise from Wilson's tincture for the gout, or the *eau medicinale;* nor does he find the disease recur more frequently than under other treatment. In administering this medicine, he waits for a day or two till the malady has fixed itself, and then gives from thirty-five to forty-five min. of the *Vin. Colchici* in camphor mixture, with a drachm of the syrup of white poppies, for three or four nights, and repeats the dose on the following morning, with twenty-five drops (qu. minims?) of the colchicum, and half a drachm of the *Syr. Papav.* These draughts are to be followed "by a pill containing three grains of the acetous extract of colchicum, (made by evaporating an infusion of the root in vinegar), and one or two grains of the *Pulv. Ipec. comp.* and the same quantity of the *Ext. Col. comp.* and the whole to be terminated by a mild purgative." Gentle tonics, and a slight mercurial are given when necessary; and to prevent the recurrence, a few grains of rhubarb, and double the quantity of magnesia, either at bed-time or early in the morning, together with restricted diet, regular exercise, and not undue exercise of the mind. Chasteness is to be observed, which Pliny designates by the word *sanctitas;* but though Sir Henry considers the word as a remarkable one in this particular sense, and, as far as he remembers, peculiar to Pliny, yet there are many of the best authorities for its use, as well as

that of its adjective *sanctus*, of which we are surprised to find a high classical man, like Sir Henry Halford, ignorant.

Colchicum, under the name of hermodactyls, was used as early as the sixth century, by Alexander Trallianus; and the identity is considered as established by some specimens which Sir Henry desired to be purchased at the market at Constantinople.

Essay Eighth is on the Phlegmasia Dolens.

This disease, which was formerly "considered and miscalled a *depot du lait*, is found not to be confined to the female sex;" and it principally depends for its origin on an inflammation of the veins of the pelvis. The author gives two examples, one of which is that of the late Earl of Liverpool. He suffered with the complaint for many years previous to the fit of apoplexy, which destroyed his mental powers for the whole year during which he survived it. The affection of the leg and thigh arose, as was supposed, from exposure to cold; and about three years before his death, the pulse was found to be remarkably slow, not more than 44 pulsations in a minute, though the original habit was about 74. This circumstance was referred by Sir Astley Cooper to obliteration of the external iliac vein of the affected side, by which means the blood was returned to the heart more slowly, and its contractions therefore produced less frequently than had ordinarily been the custom. On examination, this was found to be the case; and for several inches the corresponding vein on the right side was ossified. Four ounces of lymph were found to be deposited in the substance of the brain, "in an unnatural cavity, extending from the roof of the ventricle to the pia maternal (maternal?) covering of it." As the principal fact of the case related to the state of the iliacs, it was not perhaps thought necessary to be more precise as to the position of the fluid, whether on the right or left hemisphere; and as to the symptoms which existed after the apoplectic seizure had subsided.

Essay ninth is on the Treatment of Insanity, particularly the moral treatment.

In an insane person, Sir Henry is of opinion that there is not necessarily more than one faculty of the mind affected, namely, the *judgment*. "His perception may be clear, and his memory unimpaired." But yet it is not a very unusual thing for insane persons to reason well on false premises or erroneous perceptions. If a madman believes that he is made of glass, he exercises a correct judgment in avoiding whatever is likely to endanger the safety of his frail fabric; or if he thinks himself a great king or prince, he only acts consistently with his fancied importance in assuming the dignity of such a character. If he imagine his friends to be plotting against him, his wife to be unfaithful, or

his children ungrateful, who can blame him for disliking them? Or if, when he is rolling in wealth, he considers himself in danger of dying in a work-house, who can regard his penuriousness as misplaced. In all these cases the exercise of judgment is correct; the reasoning is accurate; but the facts are the baseless fabric of a vision.

Sir Henry adverts to many cases of insanity, and states, that of 500 cases which have recovered, 450 have manifested decided improvement at the end of three months. It is when the violence of the disease has subsided, and a calm has followed, which is usually in proportion to the excitement, that delusions adhere to the mind less pertinaciously, and that it becomes capable of being acted upon by moral agency. The judicious practitioner will then endeavour to remove, by gentle and judicious means, the distempered notions which may haunt the patient; but Sir Henry does not think it always to be expected, as an absolute and necessary proof of the removal of insanity, that a patient should admit his impressions to have been delusive. As a solace for the gloomy, he speaks in high terms of *music;* and among other examples of its good effects, states its favourable operation in the case of his Majesty George III. He makes many judicious and interesting remarks on appropriate means of employment, and on well directed attention to religious offices.

Essay tenth is on the deaths of some illustrious persons of antiquity.

Sylla, the Dictator, died by the rupture of an internal abscess in a paroxysm of rage; *Crassus*, the eminent Roman orator, of a pleurisy; *Pomponius Atticus* had a fistula in his loins, probably a dysentery, and died by abstaining from food on the fifth day, upon which he determined, on finding that his disease increased, notwithstanding the remedial measures employed.

Phocion was poisoned with the cicuta, which was the poison usually given to condemned criminals, and was always fresh pounded for the purpose; and so was, most likely, *Socrates*. But Sir Henry is mistaken in referring the same description of death to *Dion*, the father of Dionysius, the tyrant of Syracuse. He was killed by a Lacynthian with a short sword (ἐγχειρίδιον) handed to him through a window by Lycon, a Syracusan, after an ineffectual endeavour on the part of the conspirators to strangle him. The poison which Hannibal employed was most likely obtained from the serpents or deleterious vegetables of Lybia; and of the latter, Mr Hatchet is inclined to fix on *Euphorbia officinalis*. Poisoning by bull's blood was a vulgar error, for in Spain it is a popular remedy for consumptive complaints, and is sometimes caught in a bowl, and drunk, as it flows from the wound just made by the matador.

The poison with which Nero destroyed Britannicus, Sir Henry thinks, was probably the laurel water; and he refers to the celebrated case of Sir Theodosius Boughton, as affording some analogy

For his account of the death of Britannicus, he quotes the Annals of Tacitus, but employs many of the variations given by Suetonius. For instance, instead of the young members of the imperial family sitting at the foot of the same table as the emperor and guests, as stated by Sir Henry, Tacitus expressly says, "nos habebatur, principum liberos, cum ceteris idem ætatis nobilibus; sedentis vesci in aspectu propinquorum *propria et parciore mensâ.*"

It appears that Sir Henry was present as the examination of the body of Sir Theodosius Boughton, whose face, he informs us, resembled the colour of pickled walnut; but he is not correct in stating that Mr Hunter "who went down to Warwick to give his opinion respecting the disease of which Sir Theodosius had died, *pronounced it to be an epileptic fit.*" Mr Hunter stated, in this important and interesting case, "that the whole appearances upon dissection explain *nothing but putrefaction*;" that they did not give any suspicion of poison; that the symptoms described were not necessarily those produced by poison, but might arise from epilepsy or apoplexy; that the head should have been opened, to ascertain whether apoplexy was not the cause; and he adds, that though some collateral circumstances stated in evidence were "suspicious"—"every man is as good a judge of them as I am."*

It is singular that Sir Henry Halford should see any analogy between the blackness of countenance produced in Britannicus, who was buried on the evening of the day that he died, and the dark colour of Sir Theodosius, whose examination was in very warm weather, and did not take place till the eleventh day after his death, and the fourth after his interment.

Alexander the Great died of a remittent fever caught in the marshes of Babylon, though by some his death has been attributed to poison conveyed in the hoof of a mule. The Journals or Royal Diaries which were kept during his illness, and of which Sir Henry gives abstracts, are termed by him, the daily bulletins which were issued respecting his illness, and which he states are the most ancient series of bulletins on record.

We hardly, however, consider this modern and courtly phrase as altogether appropriate. A bulletin is a certificate of health; but the diaries to which Sir Henry Halford refers, appear to us to be nothing more than the continuation, during his illness, of

* Account of trial by Gurney, 1781, and Gentleman's Magazine for the same year.

the usual official journals of his operations, kept by his secretaries. Mr Williams, from whose life of Alexander in the Family Library, Sir Henry has taken his opinion, speaks of the royal Diary as a document, by which the "movements and health of the king were made known to the public."* But neither Arrian nor Plutarch intimate any such idea; for the "αἱ βασίλειαι ἐφημερίδες," the royal diaries of the former; and the "ταῖς ἐφημερίαιν" the diaries, of the latter, refer to nothing more than journals of daily transactions, (which, we presume, had necessarily some degree of publicity attached to them,) and not to reports confined to this particular occasion. We know, indeed, from the books of the Old Testament, that registers and chronicles were kept of the transactions of kings and princes, from the earliest periods of history; and there seems to be no good reason for supposing that this sort of registration was not in use in the time of Alexander.

Both Sir Henry Halford and Mr Williams view it as a matter of surprise, that no *physician* is mentioned as attending Alexander during his illness. It is singular, however, that neither of these gentlemen should have been aware, that in Diodorus Siculus it is expressly stated, that *physicians* were summoned on the increase of the complaints; but that they were unable to do him any service.†

Sir Henry anxiously follows the opinion of Mr Williams, as to Alexander's disease being a remittent caught in his visit to the marshes, and is unwilling to attribute any portion of it to his having been two nights deeply engaged in drinking, after a luxurious banquet given by him to his chief officers, and which was protracted to a late hour. Sir Henry, indeed, says nothing of the second night's potations, but only that he bathed late, and then after supper made the accustomed offerings to the gods; though the drinking till late at night (καὶ αὖθις ΠΙΝΕΙΝ ΠΟΡΡΩ ΓΩΝ ΝΥΚΤΩΝ) is particularly stated by Arrian.‡ Sir Henry informs us, that his remaining with Medius till after midnight, subsequent to the great banquet, was not to commit any excess, but for the pleasure of social intercourse; and he quotes Arrian as an authority for this point. He obviously, however, mistakes the *general* character given by Arrian from Aristobulus, of Alexander's habits, for an application to the present instance; for Ar-

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* Vol. iii. p. 391.

† Εὐθὺς δ' οἱ μὲν περὶ την θεραπείαν ἐκδεξάμενοι κατέκλιναν αὐτον, καὶ προσηδρευον ἐπιμελῶς· του δὲ πάθους ἐπιτεἰνοντος, καὶ ΤΩΝ ΙΑΤΡΩΝ ΣΥΓΚΑΛΗΘΕΝΤΩΝ, βοηθῆσαι μεν οὐδεις ἐδυνηθη· *Diodorus Siculus*, ex recens. Wesselingii, lib. 17. p. 253. Amstelod. 1745.

‡ Arrian's Expeditio Alexandri, Lib. 7. Cap. 25. p. 307, Ex. edit. Gronovii, Lug. Bat. 1704.

rian, with every disposition to speak favourably of Alexander's character, admits most serious occasional deviations from temperance on his part, of which the example in question is undoubtedly one.

Sir Henry Halford thinks he sees in the arrangements of Alexander, an example of that policy which has been successfully followed in after times, in keeping conquered countries in subjection, namely, that of intermarrying his wounded soldiers with the females of the conquered countries, and of appointing Macedonian officers to command the native troops. He tells us, that "the experience of more than 2000 years has added nothing to what his instructive discernment had already suggested to him. That his successors were taught by what he had done, to found and to govern kingdoms; and that the efficiency of the British army in India, to keep in subjection nearly one hundred millions of the inhabitants of that vast country, is at this day maintained by *the very same measures which Alexander devised and carried into execution.*"

We are quite aware, that historical researches are neither a part of the province of our Journal, nor particularly appropriate to ourselves; yet if a gentleman, who occupies a prominent place in the profession, deems it right to introduce extraneous speculations in a work which it is within our legitimate functions to notice, we feel it to be incumbent upon us to make known their nature, and examine their validity. It is honourable to the medical profession of the united kingdom, to be able to mix, as Sir Henry well expresses it, the "elegancies of literature with the severer studies of the profession;" and we trust that the facility of doing so will ever continue; but still it is of extreme importance, for the credit of this union, that the precision and accuracy which should characterize the professional writings of an eminent physician, should equally attach to his collateral subjects of investigation and research. We hope that our readers will therefore excuse us in adding to the comments which we have deemed it proper to make on some of the extra-professional speculations of Sir Henry, a few observations on the statements which we have just quoted from him.

That Alexander exhibited great judgment and discretion in controlling and attaching to his government the nations which he subdued, is unquestionable; but he does not appear to have done so by the means which it has been deemed prudent to adopt in the government of India. He set out with a profession, that he considered Asia as his own, and the Asiatics as his subjects; and, acting upon this principle, he reappointed, in many instances, conquered Satraps, and restored dethroned kings, sometimes with a large addition of territory. The con-

fidence which he thus reposed was generally well bestowed, and graciously received; and it was the ready means of furnishing him with a large auxiliary force, which was usually led on by its native commanders, and tended materially to facilitate his conquests.

There was no such distinction of castes, or opposition of religious feelings, as to make an impassable gulf between the conquerors and the conquered. As a means of conciliation, and, perhaps, from a love of magnificence, Alexander wore the Persian dress, and he had a large body of youth instructed in the Greek language and discipline. He disciplined many of the natives of the conquered countries in the Macedonian manner, sometimes in conjunction with corps already formed, and sometimes as separate bodies, having their own native commanders; and, so far from looking to Macedonians mainly for the means of retaining his conquests, it was supposed, and not without reason, that he was desirous, when he became an Asiatic monarch, of rendering himself independent of his own countrymen, of whose waywardness he sometimes had occasion to complain. His wounded and disabled men he sent home, if they wished it, with ample provision for their comfort; and showed his determination to merge all distinctions of race, by first marrying the daughter of a conquered Satrap, and a year before his death, one of the daughters of Darius, on which occasion eighty of the principal officers of his army were united to others of the family of Darius, or to the daughters of the chief Persian nobility.

The circumstances which we have mentioned in no way resemble any of the arrangements which respect our Indian possessions, when, instead of Clive, Cornwallis, Hastings, or Wellesley, either marrying native women themselves, and becoming domiciled in the East, or encouraging marriages between British troops and the natives, the policy has uniformly been to keep the English and natives as widely separate as possible. The singular error into which Sir Henry has fallen, on the subject in question, may, perhaps, have arisen from the establishment, by Alexander, a few weeks before his death, of a new corps, in which Persians formed three-fourths of the number, and Macedonians one-fourth, comprising the leaders. But if a more striking similarity existed between the organization of this corps, and our Indian army, than is really the case, still the new corps was in no way instrumental either in the accomplishment or maintenance of Alexander's conquests. It did not come into operation during his life, and seemed to be constituted in the way mentioned, merely for the more speedy production of a high degree of discipline, and the consequent preparation of a large additional force for his new projects. Nor was the

principle, supposed by Sir Henry Halford to be adopted by Alexander, at all available to his successors. His conquests were divided into numerous parts; but, while some of them were maintained by the native princes, to whom they were conceded by Alexander, it is clear that the generals among whom the remainder were divided, could not look to the mother country for the means of consolidating or increasing their power, because the mother country was a part of the spoil to be divided, and soon ceased to have any relation or interest with the distant countries which it had once been the means of conquering.

A curious point is adverted to by Sir Henry on the subject of Alexander—namely, that though the poison, to which some authors, on no good authority, ascribe his death, was said to be conveyed in some animal's hoof, from the word ονυξ a hoof, yet that, in point of fact, it must have been in a *stone* of some value to which the same name was applied. The mystery, relative both to this point, and the practice of professed poisoners of carrying poison under their nails, was unravelled, it would appear, by the late distinguished Dr Heberden, from a consideration of the double signification of the word ονυξ; and it is very remarkable that so obvious an interpretation had escaped, not only all the classical authors by whom the circumstance is mentioned, but their numerous commentators, though the application of the mineral onyx to the purposes of forming a small receptacle for precious ointments, was perfectly well known to all of them.

The interesting *narrative* of the opening of the tomb of Charles the First, in St George's Chapel, Windsor, follows. It appears that though the body of that monarch was known to have been interred there, yet the endeavours which were made some years afterwards to find it, were unsuccessful. An accident led to its being discovered, in the very spot where Mr Herbert, a faithful attendant of Charles's, has mentioned its being buried.

In forming a passage under the choir, to the Mausoleum made by George the Fourth in the tomb-house, an aperture was accidentally made in one of the walls of the vault of Henry the Eighth, through which was seen not only the two coffins which were supposed to contain the bodies of that monarch, and of Queen Ann Seymour, but a third, which might be presumed to contain the remains of King Charles. George the Fourth, then Prince Regent, when the circumstance was reported to him, directed an examination to be made into the circumstance, which was accordingly done, in his own presence, on the 1st of April 1813.

On removing the pall a plain leaden coffin, bearing the inscription, King Charles 1648, presented itself to view; and on making a square opening in the lid, an inner wooden coffin, much decayed, was discovered, in which the body was found care-

fully wrapt up in cerecloth, into the folds of which a quantity of unctuous or greasy matter, mixed with resin, had been melted, so as to exclude, as effectually as possible, the external air. The cerecloth was with difficulty separable, except where the unctuous matter had insinuated itself; but when the face was disengaged, the complexion of the skin was found to be dark and discoloured; the forehead and temples had lost little of their muscular substance; the cartilage of the nose was gone; but the left eye, in the first moment of exposure, was open and full, though it vanished almost immediately. The pointed beard was perfect; the face was a long oval; many of the teeth were entire; and the left ear, in consequence of the interposition of the unctuous matter between it and the cerecloth, was found entire. The head was loose; the muscles of the neck retracted; and the fourth cervical vertebra cut through transversely, with the divided portions smooth and even. The head was quite wet, and resting on a fluid, which gave a greenish red tinge to paper, and was considered by Sir Henry Halford to be blood. The head was then restored to its situation, the body not having been examined.

An attestation of the correctness of the account is given by an autograph of the Prince Regent; and two appendices are added, with some historical details, which are interesting.

The Harveian Oration delivered at the College of Physicians in London, by Sir Henry Halford, then Dr Vaughan, on the 18th of October 1800, is appended to this volume; as is likewise an oration at the opening of the New College on the 25th of June 1825, both of them specimens of elegant Latinity. Laudatory compositions, like Harveian orations, are hardly, perhaps, fairly open to the usual criticism which appertains to works more intended for the public eye. Nor are the examples found in them of occasional indulgence in vituperation, though not always decorous or just, to be too strictly dealt with. The harshness, in the few instances where we have observed it, has been quite general; the auditory is very limited, and looks rather for good Latin than good logic; and the effect is necessarily transient. But when an author makes an attack, the object of which can hardly be mistaken, and thinks fit to print, and still more to reprint it, the matter assumes a different aspect; and we have a right to ask, whether it is in conformity with Sir Henry Halford's usual good taste, and with that so very generally exhibited in Harveian orations, or in accordance with the liberal and dignified procedure which he recommends for the medical profession, to repeat, after a lapse of above thirty years, Dr Vaughan's severe, and, we should say, ill-judged invective? an invective which, if the profession and the

public were correct in its application, (and we see no reason to disagree with them, unless the alleged application is disclaimed by Sir Henry,) we believe to have been equally unprofessional, uncharitable, and unjust.* Dr Vaughan would hardly have condescended to notice the Brodums and Solomons of that day. They could sell their nostrums, and drive in their carriages without the necessity of approaching the persons of their patients; and having, therefore, no opportunity of exercising the "*sedulitas, obsequium, et assentatio,*" in the mode which he deprecates, we are compelled to conclude, that the Philippic was meant to apply to some one practising in London as a regular physician, and therefore under the testimonial of the College of Physicians to his being the "*vir probus et doctus,*" which his qualification specifies.

In the oration delivered at the opening of the New College, at which the late Duke of York, and many of the nobility appear to have been present, we find the following apostrophé to his late Majesty, which the oldest and most initiated courtier would have found it exceedingly difficult to make up his mind to employ in an English dress: "Te igitur, augustissime Rex—Te omni benevolentia complectimur—Te grato semper animo colemus—Te admirabimur,—Te amabimus,—nec de Tuis unquam laudibus posteri conticescent."

The Essay on the deaths of some eminent persons of modern times was read at one of the evening meetings at the college.

Henry VIII. as life advanced, became corpulent, unwieldy, and died of a dropsy at the age of fifty-six. He was a dabbler in physic; and in the British Museum, is a large collection of his recipes, which he was in the habit of making up and prescribing.

Cardinal Wolsey died of a broken heart, though the symptoms which affected him latterly were those of dysentery.

King Edward VI. died of a disease of the lungs in the sixteenth year of his age.

Queen Mary was of a delicate constitution; and frequent bleeding, with riding on horseback, were prescribed for her on account of some sexual irregularity. After her marriage with Philip of Spain, this irregularity was referred to pregnancy. She died, however, of dropsy; and Sir Frederic Madden states, that she was bled very frequently, and that in the privy-purse

* The expressions to which we allude are the following: "Neque enim *quemquam vestrûm latet*, homunciones quosdam, nec doctos nec eductos liberè, etiam illotis manibus, medicinæ altaria tangere ausos esse, et stupore vulgi factos nobiles rapido cursu pervenisse ad gratiam, ad famam, ad amplitudinem. Ita inauspicato fit, ut ingenio rectè nutrito, multiplici rerum cognitione, probitate, et modestia priorem aliquando sedem teneant frons perfricta, sedulitas, obsequium, assentatio."

account, there are charges entered of fees being paid again and again, and again, " to the surgeon who bled her."

Of Oliver Cromwell's last sickness, an account was published by Dr Bates, one of his physicians, in his *Elenchus motuum nuperorum in Anglia.* His chaplains, and Oliver himself, were of opinion, that he would recover; and he was in consequence brought from Hampton Court to London. But he became worse, and died in the sixtieth year of his age. On examination, " the brain seemed to be overcharged;" " the lungs a little inflamed;" " but the source of distemper" appeared in the spleen, which, though sound to the eye, was " a mass of disease, and filled with matter like the lees of oil."

King Charles II. had an apoplectic fit soon after rising in the morning, when he found an unusal sensation in his head. He was immediately bled, was afterwards cupped, purged, and blistered, but he died in four days in the fifty-fourth year of his age. The signature of fourteen physicians appears to one of the prescriptions. The blood-vessels of the brain were turgid, and a large effusion of lymph was found in the ventricles, and at the basis of the brain. Sir Henry Halford expresses his surprise at Bishop Burnet's attributing the King's indifference to all the solicitations made to him about religious offices, to anything but " an insensibility and stupefaction from disease."

William III was a thin and weak person, and was asthmatic early in life, and always had a deep cough. He broke his collar bone by a fall from his horse, a short time before his death; and soon afterwards had a febrile attack, which ended in an enormous secretion of purulent mucus, which embarrassed, and finally prevented respiration altogether, in the fifty-second year of his age. There was no water in the chest, though his legs had swollen considerably; " but the lungs had adhered to the pleura, and the fall had detached a considerable portion of the adhering substance, which occasioned inflammation, suppuration, and death." We submit, however, that in this case, there would been marks of pleuritic inflammation discovered in the chest, and that the enormous discharge of purulent mucus which is mentioned could have hardly been brought on by such a cause. The malady seemed to be merely a great increase of his usual and constitutional one, amounting to the extent of a *peripneumonia notha.*

Queen Mary, William's Queen, died of small-pox, in her thirty-third year.

Dryden died of a mortification of the foot, arising from ossification of the arteries.

Swift died of apoplexy; and Sir Henry differs from the usual

opinion entertained of his asperity, and depraved intellect, by referring them to disease.

George I. died of apoplexy in his carriage, just before he reached Osnaburgh, in his way to Hanover.

George II. died of a rupture of the right ventricle of the heart.

The *Duke of Gloucester* died of liver disease, which involved the stomach in so much irritability, as to incapacitate it for receiving the smallest supply of nourishment. A very high, and, we believe, a deserved character of this personage, terminates the essay.

Art. II.—*De la Prostitution dans la Ville de Paris, &c.—On Prostitution in the City of Paris, considered in reference to Public Hygiene, Morals, and administration, supported by Statistical Documents derived from the Archives of the Prefecture of Police, with Maps and Tables.* By the late A. J. B. Parent-Duchatelet, Member of the Council of Salubrity in Paris, &c.—*Preceded by a Historical Sketch of the Life and Works of the Author.* By M. Leuret. Tome i. Paris, 1836. 8vo.

Of all those frightful social evils which prevail in the bosom of large and populous cities, none is so serious as that of the increasing extent of female prostitution, nor is any one calculated so strongly to excite the interest of benevolent and philanthropical persons, warmly and sincerely concerned in the welfare and improvement of the human race. While other evils are more or less accurately confined to certain limited orders and sections of the inhabitants of large cities, the influence of this is liable to diffuse and insinuate itself in all directions, and, by its irresistible and increasing influence on morals, to sap the foundations of society.

The consideration of the means of restraining and preventing so general a form of immorality has occupied the thoughts of many ingenious persons, both in this and other countries; and while it has been the theme of many moral and religious instructions, its pernicious influence on population, and its injurious effects on public health, and on that of individuals, have formed the subject of much serious discussion to the political economist, and the physiologist and medical jurist.

It was evidently the persuasion of the diffusive tendency, and the extended pernicious influence of prostitution, as conducted in large cities, that induced Mr William Beckett, an eminent

surgeon in London, to come forward, in the beginning of the eighteenth century, under a feigned name indeed, but still with great sincerity and earnestness, as a defender of public prostitution, under certain established limitations and regulations. * The arguments which this writer employed in support of his proposition were chiefly derived from the acknowledged pernicious consequences to the health of individuals, and to population generally, by the practice of what he denominates private prostitution. Mr Beckett, however, evidently founded all his reasonings on the principle, that moral restraint has either little or no influence, and that the sexual passion is, in males especially, so violent and unmanageable, that if not gratified in this manner, female virtue could never be safe. It is to be hoped, for the honour of the human race, that this conclusion does not admit of general application, and that both reason and religious considerations are sufficiently strong to prevent such an excess of demoralization and depravity.

With the view of counteracting the progress of the evils now referred to, Mr Beckett proposed to establish, in some convenient quarter of the city, 100 or more houses sufficient to contain 2000 women, each house containing 20, who should be under the superintendence of a Matron, and the whole establishment to be under the superintendence of three Commissioners. The female residents were to be divided into four classes—one of eight, one of six, one of four, and one of two, of different ranks, the latter being the highest. To obviate sickness and detect and prevent the first approaches of disease, he also proposed the establishment of an attached infirmary, with the attendance of two skilful physicians, and at least four surgeons.

The expenses of this establishment he proposed to defray by a moderate subscription or poll-tax on the residents; and he calculated that if the first four lowest classes paid only L. 2 yearly, and the others in proportion, the proceeds would furnish an annual revenue of L. 10,000, which he contended "would not only pay the commissioners' salaries, surgeons' chests, and other contingencies, but likewise establish a good fund for the maintenance of illegitimate orphans and superannuated courtezans."

He further proposed a number of other regulations regarding the moral, the domestic, and the medical management of the residents; and defends the whole scheme upon several grounds, of which it would be here out of place to enumerate. He also appeals to the examples of Holland and Italy.

Whether Mr Beckett was or was not serious in this proposition, it seems very singular that he never adverted to the perni-

* The Natural Secret History of both Sexes, or a Modest Defence of Public Stews. By Luke Ogle, Esq. 4th edit. London, 1740.

cious consequences of giving in this manner a public and systematic sanction to vices of the most pernicious consequences both to individuals and to the public. The scheme was only a palliative, and a very bad palliative of evils, which would have certainly increased instead of diminishing, by their authorized admission within the pale of civil and municipal government. It is further not less singular that Mr Beckett did not perceive that the only effectual mode of abating the evil is to begin at its origin, and endeavour, by education, moral and religious, to disseminate correct ideas of social and moral conduct, and of responsibility as moral and religious agents, among that class of the community who chiefly become the victims of prostitution. If there be one fact which more clearly results than another from the elaborate investigation of M. Parent-Duchatelet, it is that the large majority of these females are in a state of the most deplorable ignorance,—not only ignorance in the common sense of the term, but ignorance of moral duties, and of the necessity of moral obligations, and, in short, utterly void of that most important of all knowledge, how much more it contributes to happiness and comfort to live a life of virtue and sobriety, than one of vice and irregularity, and that, whatever temporary advantages the latter may seem to afford, they can only end in misery and destitution.

The Essay of Mr Beckett is altogether a singular mixture of seriousness and levity, of ridicule and argument, of sophistry and logic, and, though pervaded by several erroneous and sophistical views, contains much that is at least plausible and specious.

At a period long posterior to this, Dr Colquhoun in his Treatise on the Police of the Metropolis, took a more serious, useful, and practical view of the state of female prostitution in London, and demonstrated not only the directly injurious effects to the individuals themselves and all connected with them, but showed what a fertile source of misery and crime was furnished, directly and indirectly, by this class of unfortunate and corrupted persons. In the year 1806, when Dr Colquhoun published the seventh edition of this work, he calculated that there were in London not fewer than 50,000 females spending their lives in prostitution, and that of this number at least 20,000 depended upon this solely as a means of subsistence, or, in other words, were professed public females, almost all of the lowest rank. As the population of the metropolis was at this time about 1,000,000* the estimate of Dr Colquhoun makes the proportion of female prostitutes to the whole as 1 to 20.

There was strong reason, however, to believe that this esti-

* About 1,025,000. In 1810, the population of London was 1,050,000.

mate, which was given in 1806, was above the actual amount; and that the error thus made must have influenced all other statements. M. Guery, a friend of M. Parent-Duchatelet, who visited England in 1834, was gravely assured by a magistrate of police, that the number of public females in London was not less than 70,000—a statement which it is quite evident was founded on that given in 1806 by Dr Colquhoun, by making allowance for the actual increase of population, and the correspondent and proportional increase in the number of these females. Others, on the contrary, more moderate in their views of this matter, believed the number of prostitutes, of different classes, not to exceed 30,000 or 40,000.

The whole of these estimates, however, are founded on imperfect data, or rather on no data at all; and have been computed, as Dr Colquhoun did, by assuming a certain number of different classes of females, living in different degrees of illicit sexual intercourse.

One point in the estimate of Dr Colquhoun is, in this respect, entitled to some notice. Of the 50,000 females whom he represents as belonging to the class of public women, he represents one-half to be living *partly* by prostitution, including multitudes of females who cohabit with labourers and others *without* matrimony. As it is evident that the estimated numbers of these persons must depend on the signification attached to the term *prostitute*, there may be different amounts, according to the alleged habits of the individuals, and classes of individuals. But it must be observed, that though illicit sexual intercourse, without matrimony, is at once immoral, and not less a violation of the laws of the Supreme Being than indiscriminate sexual intercourse, it nevertheless does not fall with propriety under the head of prostitution, in a politico-economical sense.

From his conviction of the diffusive character of the ruinous influence of this part of the community among the whole, with the idea that it was an evil which could not be wholly eradicated, and with the desire of reducing within the narrowest possible limits its injurious consequences, Dr Colquhoun was led to propose, that females pursuing this species of life should be placed under the regulation of the police, which, if prudent and discreet, he conceived, would operate powerfully, not only in gradually diminishing their numbers, but also in securing public morals against the insults to which they are exposed, both on the streets and at places of public entertainment.

In proof not only of the practicability of such a measure, but, as he imagined, of its beneficial effects in restraining the evil within its narrowest possible limits, Dr Colquhoun refers, in

imitation of Mr Beckett, to the examples of Holland and Italy, in both of which this method is adopted. *

Against this proposition we are prepared to show, that the same objections may be urged which are applicable to that of Mr Beckett.

In several respects, it may be truly said, that a similar conviction of the evils resulting to society from the prevalence of female prostitution, has led to the composition of the present elaborate and extensive work. A desire at once to reform actual prostitutes, and afford those who wished it, the means of returning to the paths of virtue and respectability, with a wish to check the further growth of the disorder, and prevent the ranks from being recruited by fresh supplies, led many benevolent persons to make various efforts to resist the growing extent of this pestilential spot.

In Paris, under the administration of the Duke de Decazes, the amelioration of prisons, the reform and moral improvement of prisoners, and the rectification of prison discipline, were primary objects of importance; and the individuals most anxious in these benevolent pursuits united themselves in an association, called the *Royal Society for the Improvement of Prisons.*

Among other means of effecting this object, one of the most effectual was conceived to be the preparation and distribution among the prisoners, of books, the perusal of which might impart an abhorrence of vice, and create a taste for virtue; and books of this description were soon composed by able writers, and the attempt is represented to have been attended with the happiest effects. At the head of the writings now mentioned, M. Parent Duchatelet informs us public opinion had long placed two productions of M. Jussieu, one entitled *Simon of Nantua*, the other *Antony and Maurice.*

The perusal of these two works produced a very singular impression on an individual, who, though living in obscurity and retirement, and wishing to remain unknown, had not forgotten this class of unfortunate fellow-creatures. As express inquiries had satisfied him of the fact, that the complete state of destitution in which prostitutes were left, in the division of the prison where they were confined, was the cause of the disorderly and vicious habits to which they still adhered; he thought that books written after the manner of M. Jussieu might reclaim from this state, and recall to better sentiments, those whose hearts were not utterly corrupted. Aware of their profound ignorance, and of the influence of this upon vicious habits, he thought it not impracticable, by imparting knowledge, to create an abhorrence

* A Treatise on the Police of the Metropolis, containing a detail of the various crimes and misdemeanours by which public and private property are at present injured and endangered, &c. 7th edit. corrected and enlarged. By P. Colquhoun, LL. D. London, 1806.

of vice, and make them quit an occupation as miserable and degrading, as immoral, and acquire the esteem of the virtuous.

Engrossed with this thought, the individual now alluded to, who is designated by the author as the man of worth, being prevented by his limited means from proposing rewards and recompenses, adopted the resolution of himself carrying into effect the project which he had conceived. For this he was perfectly fitted; for he joined to the practice of all the virtues, knowledge the most extensive, and the purest taste in all the branches of literature. In the course of his labours he discovered that peculiar difficulties opposed his progress, from the peculiar manners, tastes, and habits of the society of their associates; and, with the view of assisting him in the prosecution of his objects, he applied to M. Parent Duchatelet.

Though the benevolent intention of the man of worth appeared to M. Parent Duchatelet in many respects impracticable, and in several chimerical, he did not, however, shrink from the duty. But in no long time the death of this amiable individual caused a temporary pause in its prosecution.

M. Parent Duchatelet, however, was not dismayed by this unfortunate circumstance; and if his interest had begun to abate, it was prevented from being entirely extinguished by the desire of two strangers, M. de Montezuma and M. Dazambuja, both from Brazil, to procure, on the administratory and sanitory police of the public females, information which might be applied to the institutions of their own country. Independently, however, of these applications, similar ones for information on the system of sanitary inspection observed in Paris, came from Rome, Naples, Milan, most of the large towns in Germany, Holland, and Belgium; one came from Petersburg, and one from the United States,—all soliciting information as to the method pursued in Paris. These different considerations were so many excitements to the zeal and diligence of the author, and after eight years spent in the collection of materials, he began to arrange and redact them.

In the course of this laborious undertaking, he was not unfrequently discouraged by other circumstances. Several persons even of the most enlightened minds, scandalized at observing M. Parent Duchatelet, spend his time in researches which they deemed disgusting, spared neither observations nor charitable advice. Upon reflection, however, he could not perceive the reasonableness of this excess of delicacy. He remembered that he had already penetrated the public drains, handled putrid matters, spent part of his time in the filth and impurities of the laystalls and knackeries, and lived in some measure amidst every thing abject and disgusting; and why should he be ashamed, he argued, to approach a drain of a different sort, fouler per-

haps than the others, so long as there was a hope of doing some good. He could not be contaminated by the contact of these unfortunate creatures. And if respectable ladies, belonging by birth and rank to the highest circles in society, did not think it derogatory to their character to visit occasionally prostitutes, in order to instruct and enlighten them in prisons and hospitals, no apprehension could be entertained by a private individual in imitating their conduct, and endeavouring to attain the same object, though by a different route.

In the course of the inquiries which he had occasion to institute, he commends highly the accuracy, precision, and indefatigable vigilance of that department of the police, styled the Board of Morals. He likewise bestows a word of pitiful commiseration on those kind and well-intentioned persons, who, with every desire to do good, never put themselves to the trouble, by accurate inquiry, of ascertaining where the evil and its causes exist, and who consequently allow their philanthropy to evaporate in vague and exaggerated or imaginary statements, or to exhaust itself in chimerical and Utopian plans of improvement. Lastly, on another class of persons who possess the requisite moral energy for inquiry, but who are deficient in candour and good intentions, and who find fault with every scheme which does not originate with themselves, or in the execution of which they have no share, and who assume the garb of philanthropy only to embarrass and retard the progress of its measures, he pronounces a severe, and, we believe, not unmerited censure. Such persons, when they support their reasoning by facts, take only those which are convenient for their own purposes, and reject all others which they cannot bend to their own views. Often even he accuses them of utter want of knowledge. He states that he has perused all the pamphlets and essays of this character which have been directed against the prefecture of police, and he found in them only errors and ignorance.

The terms prostitute and prostitution do not, in the mind and language of every one, bear the same signification. In the understanding of the message of the Executive Directory to the Council of five hundred in 1796, in order to constitute a public female or prostitute, the following circumstances are requisite;—*the repetition or concurrence of several individual facts legally established; public notoriety; apprehension and flagrant act proved by other witnesses than the denouncer or agent of police.*

M. Parent Duchatelet very properly follows the government in making a distinction between public debauchery and public prostitution. A female who is debauched is not, on that account, a prostitute. Public debauchery maintains public pro-

stitution, and constitutes the transition from a virtuous, or at least a decent life, to that of vice and dereliction, which is implied by prostitution, by which the instinctive and conventional rules of moral society are set at defiance, and openly disregarded. While a female restrains herself within the ordinary habits of life, the administration must continue to regard her as part of society, and must extend to her its protection, while it exercises over her no especial inspection. But the position of the one, and the conduct of the other, are changed the moment that the female passes into that state of scandalous and flagrant immorality which requires to be restrained by authority.

It is on the principle of this distinction that M. Parent Duchatelet, in treating of the prostitutes of the city of Paris, does not propose to include in this list all the debauched or immoral females who reside in that city. He confines his researches to those of that assemblage of females who, by a concurrence of circumstances, and by scandalous habits, boldly and habitually in public, form that particular class over which the administration requires to watch with the greatest care, and which are therefore named prostitutes or public females.

Though the number of these persons has been always considerable in Paris, it appears that they have never till now been very accurately ascertained. The first express document on the subject, which was prepared about the year 1762, and is contained in a memoir presented by an anonymous person to the Lieutenant of Police at the same period, represents the number of females pursuing this avocation at Paris to be 25,000.

Nearly, at the same time, Restif de la Bretonne, the author of a treatise similar to that of Mr Beckett, estimated the number of females of all classes avowedly carrying on this occupation on the streets of Paris at 20000. Neither the previous author, however, nor Restif, mention the authorities or source from which they derived the elements of their calculation.

An old tradition of the Prefecture of Police, which was in full vigour at the commencement of the present century, was disposed to carry the number of prostitutes before the Revolution to 15,000, and even to 30,000—rather a large difference, were it not known that in the latter estimate were included females of gallantry of every description, actresses, and work-women, who made their persons available as means of revenue. Women notoriously known to the public constituted more than the half of this number; and of the latter class from 9000 to 10,000 plied their vicious assiduities on the streets.

From neglecting the distinctions established by the author, none of these estimates are of any use. But some notion of the actual numbers of these females in Paris may be formed

from the following table of the number of inscriptions during twenty years, whch we abridged from the author.

	Annual total.	Monthly average.		Annual total.	Monthly average.
1813,	20113	1676.08	1823,	32510	2709.16
1814,	22866	1905.50	1824,	31845	2653.75
1815,	22249	1854.08	1825,	31483	2623.58
1816,	26226	2185.50	1826,	29948	2495.66
1817,	28953	2412.75	1827,	29663	2471.91
1818,	31042	2586.83	1828,	31956	2663.00
1819,	31280	2606.66	1829,	34118	2843.16
1820,	32957	2746.41	1830,	36337	3028.08
1821,	34966	2913.83	1831,	39128	3260.66
1822,	34831	2902.58	1832,	42699	3558.25

It thus appears that in 1833 the total number of females inscribed or registered as public, amounted to above 42,000, and the average monthly inscriptions were above 3500. As the population of the French metropolis was, at the period referred to, upwards of 800,000, the estimate now given makes the number of public females spending their lives in, and subsisting by, prostitution, to be rather more than one in twenty of the whole population.

The next question which engages the attention of M. Parent Duchatelet, is to determine the sources from which this large number of females is supplied to the vice and depravity of the capital. It appears that all ideas on this point were vague, loose, and undetermined. It was commonly believed that females came not only from the various provinces of France, but from Germany, Switzerland, Poland, Saxony, Spain, Italy, and even England; and this statement was confidently made by Restif de la Bretonne, who thence regarded Paris not only as the centre of the incontinence of France, but as the most depraved place in the whole of Europe.

To rectify this looseness, and give something like precise results, M. Parent Duchatelet gives the following statements. —Among 12,707 registered at Paris from the 16th April, 1816, the period at which a general census was commenced, to the 31st April 1831, a period of fifteen years,

24 did not specify the countries which gave them birth.

31 came from different foreign countries.

451 belonged to European countries different from France; and 12,201 were born in the departments of the French empire.

In considering these several divisions of public females he was unable to procure any satisfactory information on the first division of 24. Thrown apparently on the world in infancy, they had forgotten the names of the persons to whom they were indebted for the first attentions; and in prostitution, which appeared to them a natural state, they found the means of providing for their subsistence.

Among the 31 strangers from different foreign lands 18 were Americans, 11 Africans, and 2 Asiatics. The Americans came from Canada, the United States, St Domingo, Guadaloupe, Martinique, and French Guiana. The Africans belonged to Egypt, the Cape of Good Hope, the Isles of France and Bourbon, and Madagascar. Of the Asiatics one was born at Calcutta, the other at Madras.

The 451 Europeans not French were supplied in the following proportions by the different countries specified in the following table :—

			Over 269
England,	23	Naples,	3
Scotland,	1	Piedmont,	11
Ireland,	4	Poland,	6
Austria,	15	Portugal,	1
The three Hanse Towns,	4	Prussia,	58
Duchy of Baden,	2	Rome,	7
Bavaria,	6	Russia,	2
Belgium,	161	Sardinia,	2
Spain,	14	Savoy,	22
Hanover,	2	Sicily,	1
Holland,	23	Sweden,	1
Island of Elba,	1	Switzerland,	59
Illyria,	3	Tuscany,	4
Milan,	9	Turkey,	2
Malta,	1	Westphalia,	3
	269		451

Of all these different countries the largest proportion is generally supplied by the large cities. Thus of the 23 from England, 17 were from London. Vienna sent 8 of the Austrians; the Spaniards were equally divided between Madrid and Cadiz; Amsterdam had more than half of the Hollanders. To this rule, however, Prussia formed a remarkable exception. Of the 58 sent from that country only 7 were from Berlin. The greater part of the residue came from Rhenish Prussia.

In this statement Switzerland presents a remarkable peculiarity. All the cantons excepting three sent the same number of girls to Paris. But among 59 Switzers 15 were from the Canton of Geneva.

Of the number of 12,201 females sent by France at large to the capital, it appears that by far the largest proportion came from the departments of the Seine, (4744,) the Seine and Oise, (874,) the Lower Seine, (546) the Seine and Marne (453); while much smaller numbers came from more remote, and, perhaps, less populous departments, as those of Puy de Dome (62,) Indre and Loir, (69) Loir and Cher, (54); and a very small proportion came from such districts as the Eastern and Upper Pyrenees (5), Vendée, Tarn and Garonne, and Aveyron (4,)

Landes, Dordogne, and Ariege (3), and Lot, Gers, Aude, Ardeche, and the Upper Alps (1.)

M. Parent Duchatelet maintains, nevertheless, that however curious be these results with regard to the number of females issuing from the several departments, they afford no criterion to determine the respective morality or the immorality of the departments. By the application of the tabular results to the map of the departments, he is on the other hand convinced, that the principal cause which influences the numbers of prostitutes contributed by the respective departments to the metropolis, is the proximity to Paris, and the facility and directness of the communication with that great centre of depravity.

From this, however, he allows that some exceptions must be made, which, after all, only confirm the rule. Thus, while Lyons, and the Puy de Dome, Cantal, and the Upper Loire present larger numbers than the other departments at the same distance from the metropolis; this depends on the commercial relations subsisting between Lyons and Paris, and on the habit which the inhabitants of Auvergne have contracted of coming to Paris to perform laborious operations, and to act as substitutes for the slaves of the ancient nations.

In the zones most remote from the capital, the influence of commerce, and the sea ports, is particularly evinced in the departments of the mouths of the Rhone, (25) the Lower Pyrenees, (12) the Gironde, (39) the Lower Loire, (69) and Finisterre, (42). The same influence, combined with the proximity to Paris, explains the reason of the large amount of the Lower Seine, (546) of the Somme, (302) of the Pas de Calais, (163) and of the department of the North, (308). The influence of large schools may be observed, he thinks, as to the departments of the Upper Garonne, (8) and Herault, (9) each eight or nine times larger in amount, than the surrounding departments, (1, 2, and 3.)

Of this comparative habit of furnishing, as it may be denominated, females to the capital, M. Parent Duchatelet has communicated a very just and correct notion by a map of France, in which each department is coloured with a deeper shade of black, according as its female population have been the causes, the victims, or the instruments of the depravity of the capital. The departments of the Seine, the Seine-and-Oise, the Lower Seine, the Seine and Marne, the Oise, the Aisne, the North, and the Somme, which partake most largely of this criminality, are tinged with the deepest shade of black, though all a little different. The other departments gradually assume a lighter tint, as the distance from Paris increases, and according to the

influence of the causes already mentioned. The lightest are, on the whole, those most remote from the capital, with the exceptions already specified, as those of the Gironde, (39) and the mouth of the Rhone, both of which are much darker in colour than any of the adjoining or surrounding departments. The only department, which, in this dark and gloomy picture of human depravity, is perfectly white, is that of the department of Loxere, from which no public female in Paris was known, within the time specified, to have come.

On another point, interesting as to the habits of the individuals, namely, the proportions of females from the chief places or towns, the sub-prefectures, and the country, the author gives the following numbers.

Of 12607 females registered during the fifteen years, between the 16th March 1816, and the 31st April 1831.

The principal towns furnished	6,939	
The sub-prefectures	1 702	
The country	3,460	
Strangers	482	
From places unknown	24	
		12,607
Paris alone furnished	4,469	
The two sub-prefectures	39	
The country	236	
	4,744	

Occupations of the Parents of Public Females.—To illustrate this circumstance, and its influence, M. Parent Duchatelet gives a tabular view of the occupations of 828 fathers of these females born in Paris; and from this he infers, that the prostitutes born at Paris all issue exclusively almost from the class of artisans and workmen; and a similar table of 2504 fathers of prostitutes from the departments, gives a general confirmation to the same conclusion.

In the case of those born at Paris, the most numerous are the class of day labourers, (113,) which constitute one-fourth of the whole (460). In the case of those born in the departments, the most numerous class are those of workmen occupied in rude and painful duties (561), which is more than one-fifth of the whole (2504); agricultural labourers (325), about one-eighth of the whole; weavers of all sorts (192), about one-thirteenth of the whole; carpenters, joiners, and draymen (182), and masons, plasterers, and hewers (181), both approaching to one-fourteenth of the whole. In this table of the Departments we observe, that only one actor had a daughter a prostitute, and one executioner, while the priests have none.

From these facts the author infers, that from the families of workmen, and those not favoured by fortune, and who, consequently, have neither the means of educating their daughters, nor of watching over their progress, still less of providing for their necessities when they attain a certain age, issue the domestic servants, and the girls of the workshops, those hotbeds of depravity, of which, while we admire the products which they furnish, it is impossible to avoid deploring the pernicious effects.

It is, therefore, contrary to the fact to represent, as has been done by many, that among the rank of public females in Paris is found a considerable number sprung from very distinguished families. The author admits that one had a general as godfather, and the witness of her baptismal certificate, but her father was an inferior flesher; that of another, the daughter of a notary, a prince was godfather, and a lady of great name godmother; that a female named D—— is really of an illustrious family; and that other three are nearly in the same circumstances. These, he justly observes, must be regarded as exceptions to the general rule; and, however striking they may be in the great mass of facts tending to establish the general principle now deduced, they cannot be admitted as any just ground for general conclusions.

Degree of Instruction possessed by the parents and families of prostitutes.—This it is difficult to ascertain among so great a number of females. M. Parent Duchatelet thought he might, in the absence of other means, employ the handwriting, as exhibited by the signature of the fathers in the baptismal certificates. The result of this, as to Paris, is the following:—Among 718 baptismal certificates, it is specified that the fathers signed in 545 cases, and that they were unable to sign in 173. From which the author infers, that one-third of the fathers are so ignorant as to be unable to subscribe their names; and this at Paris, where primary instruction is within the reach of all, and where this kind of instruction is most necessary.

In a like number of witnesses signatures were given in 642 cases, incapable of being given in 176, or about one-eighth. This great difference the author explains by reminding his readers, that persons unable to write take preferably, as a witness, an educated person, and that upon this principle many workmen choose their master or the foreman of the workshop.

In the Departments the following results are given:—

In a number of 2377 baptismal certificates, or simple bulletins, the fathers signed in 1472 cases, allowed they could not in 905 cases; witnesses signed in 1965 cases, allowed they

could not in 412 cases. From this it follows, that the ignorance of the fathers of these females is greater and more general in the departments than in Paris; that the number of educated witnesses is more considerable than the number of fathers equally educated; but that the difference in this respect is less striking than in the capital. The whole tends to show, that the prostitutes from the departments belong, like those of Paris, to the most indigent and ignorant families, since, in so large a proportion of cases, they have been unable to procure the first elements of the most simple education.

Degree of Instruction possessed by prostitutes themselves.—The views now given are more positively confirmed by the degree of education possessed by the females themselves, as ascertained in nearly the same manner.

M. Parent Duchatelet considered as quite ignorant those who declared they were unable to sign, or who satisfied themselves by tracing a cross, or any other mark, in place of their name.

Among those who subscribed their names, he made the following distinctions:—In the first, or lowest class, he ranked tremulous, imperfectly traced, unsteady scratches, indicating difficulty, labour, and the want of habit in the individual who guided the pen; and in the other, he regarded as of a higher order those who possessed the opposite characters. The first he regarded as proceeding from persons who received a certain degree of education, who were able to read, since they could write, but in whom this education had been interrupted. In the second, he recognised the marks of education carried to a higher degree, and cultivation of the mind continued for a longer time, and even maintained by practice.

This being fixed, he formed four classes; the first consisting of those who did not sign; the second of those who signed badly; the third of those who signed well and expeditiously; and the fourth those of whom no information was obtained. Upon these different heads the following results were obtained:

Among 4470 girls born at Paris, and reared in the city.

2332 were unable to sign.
1780 signed badly.
110 signed well, in some cases very well.
248 furnished no information.

As in the capital of France instruction has been always more generally diffused than elsewhere, where it is given gratuitously to the indigent, and where the people feel its importance because it is necessary to procure subsistence, to find a single girl, however little instructed, among 223 ignorant, is to recognise either the complete incapacity of these creatures, or the carelessness of parents, and consequently the proof of the moral degra-

dation and desertion to which they have subjected their children.

In other localities very similar results are obtained.

Among 39 females from the two sub-prefectures of the Seine, 25 did not sign, and 14 signed badly. Among 264 coming from the country, 146 did not sign, 74 signed badly, and 44 furnished no information. From this the author infers, that though the ignorance of the girls born in the country is very general, it is less than among those born in Paris.

To determine the matter, however, upon a more extensive scale, he has recourse to the division into zones formerly mentioned, taking Paris as the centre.

In the zone of the North, which is certainly the most gloomy in the moral map to which we have already referred, among 1819 individuals, examination of the dates, as furnished by the principal towns, sub-prefectures, and country, afforded the following results:—

	Principal towns.	Sub-prefectures.	Country.
Unable to sign,	663	878	1955
Signing badly,	1052	446	714
Signing well,	37	24	14
Without designation,	67	56	28

The other two zones of the middle and the south we shall place in tables, by way of giving a general view of the whole numerical proportions.

	Middle Zone.			South Zone.		
	Chief place.	Sub-pref.	Country.	Chief place.	Sub-pref.	Country.
Unable to sign,	272	128	169	59	20	36
Signing badly,	183	81	61	51	15	9
Signing well,	10	4	4	0	0	2
Without designation,	19	9	20	1	2	7

In the case of 501 strangers, the following were the results.

Unable to sign,	245
Signing badly,	217
Signing well,	17
Without designation,	22

The professions pursued by those becoming public females at the time of registration. The researches of the present author show that the professions pursued, belong in general to those of seamstresses, trowser-makers, glovers, upholstery-women, menders, embroiderers, lace-makers, flower-makers, feather-workers, knitters, hatters, haircutters, ladies-shoemakers, boot-closers, card-makers, brush-makers, bleachers, hairdressers; and a few other occupations in smaller proportion.

None are of an elevated rank. But M. Parent Duchatelet allows that it is requisite to add some a little higher. 3 for example were midwives; 7 had been merchants in well-established shops; 1 painted landscapes very well; 6 were musical, and gave lessons on the harp and piano; 16 had been actresses or *figurantes* in different theatres in Paris or the departments; and, lastly, 3, by a rare exception to the general rule, possessed revenues of 200 francs, 500 francs, and even 1000 francs. What circumstance determined the latter to be enrolled in the general list of prostitutes, is a circumstance of which the author professes his ignorance, and which must be matter of astonishment to every one.

The general result is, that the majority, by a large proportion, is derived from that class of girls who are occupied in sedentary pursuits, in manufactories and workshops; and when the small, uncertain, and precarious gains of these neglected but often industrious females are considered, and the unsteadiness of their employment, which is often interrupted for three months at a time, and when it is remembered, that they are thus exposed to the most severe privations, and even in danger of perishing by hunger,—the author is inclined to drop a tear of pity over these women, as often placed in situations too trying for human weakness, above all where it has not been fortified by moral culture and the confidence inspired by true religion.

The age of public females, and the ages at which they are registered in this character. This is a point of some importance in several points of view; and to obtain the most likely information about it, the author examined the age of 3517 females who were in the list of registration as public on the 31st December 1831. Of this number there were

From Paris and the department of the Seine,	931
From the other departments,	2170
From foreign countries,	134
And of those who could furnish no baptismal certificate,	282
Hence the age could be ascertained in	3517

The following table is the result.

Actual age.	Paris.	Departments.	Strangers.	Total.
12 years	1	0	0	1
13	1	1	1	3
14	5	3	0	8
15	9	8	0	17
16	20	22	2	44
17	18	35	2	55
18	33	61	7	101
19	34	75	6	115
20	58	46	12	216
21	56	138	10	204

Actual age.	Paris.	Departments.	Strangers.	Total.
22 years	59	178	12	249
23	62	165	13	240
24	56	141	10	207
25	56	129	8	193
26	53	149	3	205
27	33	118	8	159
28	43	105	3	151
29	40	179	7	126
30	33	76	4	113
31	31	92	4	127
32	35	71	3	109
33	24	52	2	78
34	24	54	0	78
35	18	45	1	64
36	15	34	2	51
37	11	31	1	43
38	12	27	0	39
39	13	21	3	37
40	14	17	0	30
41	9	16	0	25
42	8	10	0	18
43	12	11	0	23
44	9	6	0	15
45	5	9	0	14
46	1	10	0	11
47	6	7	0	13
48	1	3	2	6
49	6	3	1	10
50	0	5	0	5
51	2	5	1	8
52	0	3	0	3
53	0	3	0	3
54	1	1	0	2
55	2	2	0	4
56	0	1	0	1
57	1	2	0	3
58	1	0	1	2

We do not follow the table after 58—after which age the registration presents the enrolment of no woman born in Paris, only one from the Departments at 65, and one stranger at 59, and one at 64.

Our limits do not permit us to give the table exhibiting the ages at which the enrolment takes place. But we may state from it shortly the following general facts, which will give some idea of the question.

Before the age of 10 there is no instance of enrolment at the time referred to. But there are two of girls at 10, and two at 11 from the departments. From Paris there is one enrolment at 11, three at 12, and two at 13. After this age they rise rapidly in both channels, until the ages of 18, 19, and 20, when they rise to 100 from Paris, and 169, 209, and 272 from the

departments. After the age of 20, they undergo a slight but palpable diminution onwards to the ages of 23 and 26, when they fall to 56 for the city, and 98 for those from the departments. After these two ages the numbers descend rapidly to the age of 40, after which few enrolments take place, that is, not above one or two. At the age of 49, indeed, the column allotted to strangers presents a sudden increase from zero and unit to 10, and an equally sudden descent to zero. But it is manifest that this must have depended on some peculiar accidental circumstance.

The original cause of prostitution. We must pass to this without dwelling on other points, which are less important.

It appears from the researches of the author, that numerous causes have concurred to lead to this life of degradation and depravity the individuals who are found in it.

The most uniform, and that which is most common and general to the whole, is that of the disorderly and irregular manner in which their lives are spent. For the space of ten years, he observes, scarcely were there seen at the Dispensary three or four girls, who came for the purpose of inscription, who were still in the virgin state. Prostitution, therefore, may be regarded, as to females of this class, as the consequence, almost inevitable, of the first violation of the most important of duties.

Other accessary causes, however, concur with this to the ultimate result.

Of these indolence, and the wish of procuring comforts, or dress, or other enjoyments without exertion, may be placed first on the list. Vanity, and the love of expensive dress and finery, are also powerful causes which concur to produce the same effect. Misery, however, indigence and destitution, carried often to the most painful degree, perform a very important part in this career of vice and misconduct. Many girls, abandoned by parents and relations, unable to procure any asylum, are compelled to have recourse to this extremity, to avert the pangs of death by actual starvation. He mentions the case of one of these unfortunate females, who, still susceptible of feelings of honour, struggled to the last before adopting a resolution which she considered as extreme; and when she came to inscribe her name, proof was obtained that she had not tasted food for three days. We regret to observe that the author does not mention whether effectual means were taken to prevent this girl from perpetrating the act of moral suicide, which her sufferings compelled her to meditate.

With others, again, the efficient causes are domestic quarrels, the bad treatment of girls by their parents, especially by a step-father or step-mother, the vicious and depraved example of fathers and mothers, the former, if widowers, often living with

concubines, the latter in the widowed state having lovers and gallants, with the necessary domestic disorder and want of comfort attendant on such profligate habits. It is manifest, that the bad example of such parents must prevent their children from knowing either the blessing or the value of virtuous habits; and it is further clear, that such persons can take no interest in the moral or religious improvement of their children.

In the provinces peculiar causes of prostitution exist in the multitudes of young girls who are seduced, often under the delusive promise of marriage, by young military officers, students, mercantile travellers, or others. These unfortunate girls, either led by the representations of their lovers to come to Paris, with the hope of an establishment, or disgraced at home, are prompted to quit their friends, and seek in the capital to hide their shame, and procure the means of subsistence.

The most powerful of all the causes of prostitution, however, among the Parisian females, is indigence and misery, from the extremely precarious nature of their employments, and from the scantiness of their gains when occupied. All those who work by the needle, as white-seamstresses menders, glovers, &c. however dexterous and diligent, can scarcely make so much as to procure the means of subsistence; and when out of work, they are in abject misery. This fact leads the author to regret that the occupations of women are so often usurped by men in coffee-houses, shops, and warehouses.

In a few rare cases, prostitution has been adopted by certain women as a means of fulfilling the duties of daughter or mother. Married women, he states, abandoned by, or deprived of, their husbands, and thereby of all means of subsistence, have not unfrequently become public, in order to prevent a numerous family from dying of hunger. He represents it to be still more common to find young girls, who, unable to find in work the means of providing for aged and infirm parents, become, in the evening, prostitutes to complete the deficiency. Express evidence on the two latter classes, has satisfied the author that they are more numerous than is generally believed.

To illustrate the comparative influence of the different causes now enumerated, he classifies the number of 5183 females in the following tabular view:

	At Paris.	Principal Towns.	Sub-Prefectures.	Country.	Stranger.	Total.
Extreme misery, absolute nakedness,	570	405	182	222	62	1441
Loss of parents; no home; complete destitution,	647	201	157	211	39	1255
To support aged or infirm parents,	37					37
Elder daughters of families, orphans, to support brothers and sisters,	29					29
Widows or destitute married women,	23					23
Girls from the Provinces for concealment in Paris, &c.,		187	29	64		280
Brought to Paris, and deserted by officers, travellers, students, and others,		185	75	97	47	404
Servants seduced by masters, and discarded,	123	97	29	40	0	289
Females living in concubinage, deserted, and ignorant what to do for subsistence,	559	314	180	302	70	1425

It is remarkable that of these different classes of females the first, second, and last, are by far the largest, and make a very near approach in numerical equality to each other.

It is further observed that among the 5183 persons classified in the table now given, the author found

two sisters inserted together in the registers,	164 times	= 328
three sisters inserted	4 times	= 12
four sisters	3 times	= 12
making a total amount of sisters		* 352

He also recognized

of the mother and daughter,	16 cases	= 32
of the aunt and niece,	4 cases	= 8
of two cousins-german,	22 cases	= 44
		84

making in all 436 persons united by the closest ties of consanguinity.

The author takes care to add, however, that the persons so connected did not enter this immoral list at the same period. The number is distributed over a space of from seven to eight years.

On the manners and habits of the Prostitutes, (Chap. II.) we must be brief.

To understand the opinion these females entertain of themselves, it is requisite to study their manners and thoughts in prisons and hospitals, in the hour of punishment or bodily affliction. And in this M. Parent Duchatelet only confirms what has been long known to every good observer of human nature,

* In the work itself this number, which is the right one, is made 252. The error is rectified in the present article.

that the confidence and air of ease and self-possession, and the occasional hardihood and assurance presented by females living in this species of occupation, are all assumed and artificial, and, in a large proportion of cases, conceal a heart struggling with the most insupportable consciousness of degradation, depravity, and contemptuous disregard by the world. All seem oppressed in their calm and solitary moments, with the most bitter anguish and remorse. The consciousness, also, that they are held in the lowest contempt, and regarded as the most depraved of beings, tends to embitter their existence, and even to induce melancholy and derangement. Not long before the time at which the author was engaged in his researches, M. Pariset made him observe a girl at the Hospital of the Salpetriere, who though she never uttered a syllable in public, whenever she believed herself alone, repeated incessantly the reflections;—"How unhappy am I in having quitted the paths of virtue? How can I endure the general contempt? How can I live in this state of debasement?"

These females are not all entirely void of religious feelings; but they seem mostly the result of habit and imitation. Such evidently are their occasional practice of making the sign of the cross in the streets, when they meet a funeral, and seizing the branches distributed at Easter; the practice of burning wax-candles before the altar of the Virgin of Bon-Secours by one girl of the lowest rank during the tedious and mortal illness of her infant; and the fact that upon the death of one female at her own residence, her companions voluntarily assessed themselves to make a magnificent funeral service, and to pay for a great number of masses.

Probably more genuine marks of the necessity of religious consolation are to be found in the following examples. A young woman, who had fallen suddenly ill in a public house of prostitution in the street of La Mortellerie, requested the aid of a priest; and three of her companions hastened with the message to the Church. But when it was known in what place she was, it was reasonably required that she should be conveyed to some other abode; and this condition was carried into effect with the greatest eagerness by the mistress of the house and all the dependent girls.

To one girl an assignation was proposed in the Church of Saint Sulpice. But she would not accept it, on the ground that she was unworthy to enter a church, and that she had sworn not to set her feet within its walls, so long as she practised her profession, though she did so with repugnance, and under the impulse of necessity.

The last instance which he mentions, proves not so much the fact of religious impressions, as the peculiar phenomenon

sometimes exhibited by the human mind, of a wish to satisfy the conscience by the appearance of the observance of some of the external duties of religion, while the heart is still untouched by its spirit, and the conduct is a daily contradiction to the pretensions. An ancient public female, who had in the progress of time become mistress of an establishment, was observed to be present every Sunday at the High Mass of her parish, holding in her hand a prayer book, magnificently bound, and listening attentively to the Homily of Saint Germain l'Auxerrois. Mingled with all the noblest and most pious personages in the Court of the late Charles Tenth, this woman, M. Parent Duchatelet was assured, had in her alcove a crucifix, and in her chamber a figure of the Virgin, and several paintings of saints. What substantial benefit, it may be asked, did they produce on her life and conversation?

The truth is, that this species of combination of some of the external appendages of religious duty, with habitually depraved conduct, is not uncommon; and we could give one not less pointed from personal experience in this country. One of us had occasion to be present at the medico-legal inspection of the body of a female, who had presided over an establishment of this kind, and who had died under circumstances which awakened suspicion. In her bed-chamber, and where the inspection was performed, the few books found were the following; Watt's Discourses, the Whole Duty of Man, a volume of the Spectator, the Life of Christ, the Life of Principal Hill, the Pilgrim's Progress, Scripture Transactions, a copy of the New Testament, very well read, and a book of devotional poems, with a few others of the same character.

The author justly observes on this point, that it is not astonishing that the gross ignorance of these unfortunate females leads them to fanaticism; nor can it be wonderful that, from the same cause, they mistake the external forms for the essential spirit of religion.

Few of them are utterly divested of all modesty or bashfulness; and numerous examples at the dispensary and prison are seen of girls who evidently suffered much mentally in the requisite inspection of the sexual organs. Upon the whole, M. Parent thinks that at present the public females in Paris are much less indecent, and less frequently or violently brave public feeling, than they did before and under the revolutionary period, when a general licentiousness of manners was everywhere prevalent.

The practice of tatooing or impressing on the surface of the skin by means of indigo dissolved in sulphuric acid, or by gunpowder, various figures, cyphers, letters, or marks, is chiefly

confined to the lowest class, whose society is sought after by private soldiers. These marks, when they are made by the former agent, they possess the power of effacing, by rubbing the skin till the cuticle is detached, when they remove the colouring matter and a little of the *cutis vera.* M. Parent states that this operation is followed by a very slight scar, without deformity, and admits of a second illiteration.

The operation of erasure is, however, not altogether free from danger; and he mentions the case of a young girl who, in attempting to efface a name which she had awkwardly inscribed on the blood-letting spot of the left arm, caused an enormous attack of inflammation, which could not be controlled, and under which she sunk.

The practice of tatooing is, however, much on the decline.

The practice of assuming false names has always been common among public females; and traces of it are found in the reign of Louis XIV. The reasons assigned by the author are, the necessity of escaping from judicial pursuit, or evading the administration of police; the shame of being identified with their families and relations; and in some instances utter ignorance of their origin.

In the police inscriptions, the real names are in all cases required, unless in the second, and a variety of it, viz. where a married woman or a widow is desirous not to stain the character of her husband or children, by placing the name among the list of those devoted to prostitution. In cases in which the name was changed without obvious reason, unless for the purpose of deceiving the administration, and evading the inquiries of the police, the fault was, in 1817, punished by imprisonment for three months.

The extent of this species of counterfeit may be understood from the following details.

From the 18th November 1828, when the production of the certificate of birth was required for those enrolled to 31st December 1831, rectifications to the names and surnames of 2271 girls were required. In these alterations were found,

Names entirely changed, ...	528
Christian names entirely changed, . .	861
Christian names and surnames changed, . .	314
Names altered, ...	215
Christian names and surnames changed or enlarged,	353
	2271

As the total amount of enrolments referring to the time specified was 4598, it appears that nearly one-half had given false designations.

Under the head of changed or enlarged names, the author refers to the practice often followed by these females, of assuming or applying soubriquets, or nick-names, by which they are often distinguished among each other. Of these he gives a list under the two heads of the names most in use by the inferior, and those most common among the superior, class of females. We can only insert a few of each, merely to show the respective taste in this department of the occupants.

Inferior Class.		*Superior Class.*	
Roussellette	La Picarde	Armida	Octavia
Mont-Saint-Jean	La Provençale	Calliope	Malvina
Perfect	The Spaniard	Zelia	Virginia
Brulette	Belle Jambe	Amanda	Azelina
Mourette	La Blonde	Pamela	Ismeria
La Ruelle	Le Boeuf	Natalia	Palmyra
La Roche	Brunette	Sidonia	Aspasia
Short hair	Bouquet	Thalia	Lucretia
Long hair	Mignarde	Artemisia	Angelina
Raton	Bourdonneuse	Leocadia	Emilia

Like the vicious, degraded, and inferior ranks in other countries, the public females in France employ often a particular term for designating various objects or persons in mutual conversation. But the author represents it to be false that they have any jargon or cant peculiar to themselves.

Among their faults he classes a taste for strong liquors, at least among the inferior orders, falsehood, and excessive passionateness and proneness to quarrel and fight in the most furious manner. Among their good qualities he mentions liberality and readiness to assess themselves for the relief of distress, either in the sisterhood, or among others, the most humane attention to pregnant members of the society, and their infants, and remarkable maternal affection.

The section on the lovers and supporters of public females, on the *Tribades*, and on the fancy men, or favourite gallants of each, we pass over entirely to proceed to the physiological peculiarities. It is sufficient to say that these sections contain the full proportion of every thing disgusting, abject, and depraved that can be imagined in reference to these misguided women.

Physiological Considerations—Corpulence peculiar to many public females.—The corpulence and appearance of perfect health exhibited by these women strikes every beholder who sees them in a body or in numbers in any place. But to this there are many exceptions, some being ordinary, others absolutely emaciated.

It is singular, that, in explaining this phenomenon, the author has thought it requisite to bestow any attention on a current popular opinion, which imputes it to the use of mercury; and we are rather astonished to find this opinion is even entertained by some of the faculty, one of whom thought it so well founded, that he seriously proposed to mercurialize the animals destined for the use of the table. What a singular thing is speculation, when it rejects the evidence of facts, or takes only a partial view of them.

The physicians of the Dispensary and of the prisons observed that the corpulence and aspect of good health was frequently observed in women who had never had the venereal complaints, and who had never taken mercury. M. Parent properly asks, how could salivation and the irritation of mercurial preparations on the digestive organs induce plumpness? Is it not more likely, he adds, that it is one of the causes of the phthisical and enteritic attacks under which so many of them die? Undoubtedly this mineral is. We have seen it induce, even after being once used, and always after being several times employed, irritation and inflammation, not of the alimentary mucous membrane only, but of the tracheo-bronchial; and the usual complaints of the class of females now mentioned in this city are not only inflammation of the intestinal mucous membrane (*enteria; enteritis mucosa,*) inducing chronic diarrhœa, but *laryngitis* and *bronchitis*, terminating in laryngeal or pulmonary consumption.

The plumpness of these women he attributes consequently to their inactive mode of life, the abundant quantity of food they procure and consume while in their profession, and the great number of warm baths they employ.

An important question to be determined in a physiological view is, whether, in truth, this circumstance is really an indication of good health. On this point the author does not enter. But it appears to us exceedingly doubtful, indeed, whether a person with a large deposition in the adipose tissue can be regarded as in a state of health, whatever may be the external appearance; and we think that many physiological and pathological facts might be adduced to prove that this deposition is an aberration of the nutritive powers, and only takes place where the materials of nutrition are not accurately and generally applied to the support of the different tissues.

Change in voice peculiar to prostitutes.—Some public females are remarkable for their beauty and freshness, for their delicate appearance and the elegance of their manners, and by their appearance they might be taken for persons the best educated; and, in short, possessing every qualification to please and charm. But the moment they speak a frightful contrast is presented.

You hear not the delicate tone which gives so much interest to the female voice, but only hoarse discordant sounds which wound the ears, and which a drayman could scarcely imitate. To this peculiar change in voice presented by certain public females, the observations already made regarding their corpulence are in a great degree applicable.

Though remarked in many it is not seen in all. In general it does not come on before the 25th year, and it is observed in girls of the lowest order who haunt the doors of taverns and who have the habit, during intoxication, of screaming and vociferating, and with females who, having been in the first class, have sunk to the lowest, and have fallen into abject and gross habits.

The true cause of this singular change in the female voice, M. Parent Duchatelet ascribes to the concurrence of two circumstances which operate sometimes separately, sometimes in unison. The first and most general is the abuse of strong liquors, and the habit of inebriation; the second is the inclemency of the weather, and, consequently, the chilling to which certain orders of females are in many cases exposed. The operation of the latter cause is now much diminished, in consequence of the measures taken by the administration relative to public females placing themselves in stations, and the manner in which they are allowed to appear in public. For the last twelve or fifteen years they have been forbidden to appear with the head and neck uncovered, and taking a station is permitted only to a few. It is now observed, that hoarseness and change in the voice is much less frequent among public females than formerly.

Peculiarities presented by the colour of the hair, the eyes, and the eyelids.—The observations of the author, on the first subject, lead to the following results;—1*st*, That black hair and chestnut hair are much more frequent as we descend from the north to the south; 2*d*, that brown hair predominates less in the north; 3*d*, that those of a fair tint are observed so much more frequently as we ascend from the south to the north; and 4*th*, and in the last place, the red shade follows the same law as the fair, and ceases to appear in the zone of the southern departments.

On the colour of the eyes, the following are the results;—1*st*, The gray colour of the eyes, considered in the whole population surveyed, is remarked more frequently than all the others; 2*d*, the brown colour comes next in frequency; 3*d*, the blue tint follows the brown; and, lastly, the black and red shades are met four or five times less frequently than all the others.

Stature of Public Females.—This varies from fifty-eight or

fifty-nine inches to sixty-five inches, above which there is but a small proportion of women. The greatest numbers are placed between the heights of fifty-nine and sixty-two inches.

On the state of the sexual organs, and medico-legal questions thereto relating.—The information on this head the author applies to determine whether there be distinct marks between the parts of a female yet a virgin, and one who has had intercourse with the male. It is well known that anciently the anatomical distinctions between the virgin state of the reproductive organs, and the state after commerce with the male, were supposed to be quite satisfactorily established. As anatomy, however, came to be more fully studied, and as medical jurists began to pay closer attention to the subject, the certainty and unequivocal character of these marks was called in question; and the question of deciding the difference between the virgin, and the penetrated state of the female sexual organs, has become much more difficult and complicated than it was at first imagined to be.

This difficulty has been rather increased than diminished by the present author, whose inquiries on this point show that there is still less difference than might be imagined between the parts in the most common female, and those in the virgin state.

According to his researches, the genital organs of prostitutes present no special or peculiar alteration; and in this respect no appreciable difference between them and the most virtuous married women can be recognized.

Inspection by the aid of the speculum proved to all the physicians concerned, that degrees of amplitude and straitness of the vagina were to many women a natural and congenital state. Daily, at the hospital, and in the infirmaries of the prison, were seen young prostitutes almost commencing the profession, and who had never been with child, in whom the vagina is more dilated than it is in married women after five or six parturitions; and conversely, there were seen other women who had lived twelve or fifteen years in prostitution, whose persons bore the character of decrepitude, and whose genital organs, and especially the vagina, presented no trace of alteration. One day, in the prison of the Madelonnettes, there was seen a woman aged fifty-one, who, from the time of her fifteenth year, had lived in prostitution, yet in whom the genital parts might have been confounded with those of a virgin growing from puberty. M. Jacquemin, one of the dispensary physicians, he also adds, knew several young girls carrying on the profession for from ten to twelve years, and in whom the genital parts were in such a state of preservation that it might have been doubted whether in them virginity was lost.

From these circumstances and others similar, in which he

was, by simple inspection of the parts in known prostitutes, grossly deceived (p. 216,) the author contends that it is impossible in this manner to decide upon questions of violation, and equally difficult to determine, in any given case, whether a woman, dead or alive, has lived, not in disorder simply, but in that species of disorder of all hours and moments, which distinguishes the life of a public female.

The examination of the genital organs furnished M. Jacquemin further with a new sign of pregnancy, which may, in a medico-legal view, become very useful. This sign consists in a violet and sometimes a wine-lee coloration, contracted at this particular period in the life of a woman, by the whole mucous membrane of the vagina. This sign is so evident, that M. Jacquemin was never deceived, and that it was alone, independently of the other symptoms, sufficient to decide on the existence of pregnancy. This state of the mucous membrane in pregnant females was established from an examination of not fewer than 4500 females.

On the subject of menstruation there is nothing very precise. It appears only that the whole of those who, having become penitent, renounce prostitution, and enter the convent of *Le Bon Pasteur*, arrive there without menstruating, menstruation is not re-established during their residence in the house, notwithstanding the repose which they enjoy, and the good food which they procure.

Of the Fecundity of Prostitutes.—Though the opinion, that females living in prostitution are sterile, be in general well-founded, it is not free from exception, or absolutely true. From documents preserved at the Board of Morals, and embracing a space from 1817 to 1828, it appears that the accouchements which took place during that period at the special hospitals, which these women enter for this purpose, amounted to the annual average of 51½; and when the additional allowance is made for the women who are confined at the hospital for a previous attack of venereal symptoms, and in the prisons for misdemeanours, this amounts to the annual average of 63½. This is about 22 in the thousand.

From this it appears, that, though public females are not absolutely sterile, they are much less prolific than women not living in prostitution, between the ages of 18 and 25 years, during which period these deliveries took place.

Abortions among these women are frequent between the seventh and eighth months of pregnancy, and still more frequent at a period anterior to this. These abortions are sometimes spontaneous, and are known by the discharge of what they call a *bondon*, which Serres ascertained to be an ovum of from four to

five weeks. In other instances, it was known that abortion had been artificially produced by the mark of the perforating instrument being found in the *ovum*.

These facts show that public females may be impregnated, though the pregnancy may be interrupted by various causes. When they quit the profession, or become attached to a single individual, they often become prolific, and give birth to several healthy children.

The infants of prostitutes are remarkable for being extremely short-lived. Among eight infants born ordinarily within the prison, four die in the first fifteen days, and the other four in the course of the first year. Among ten infants born at the hospital in the course of a single year, five died almost at the moment of birth, and the other five before the complete recovery of the mother. Madam Le Grand, chief midwife of the *Maternité*, also gives her testimony that the infants rarely live, are often still-born, and the deliveries are uniformly followed by severe accidents.

When these infants survive a few weeks, their fate is miserable. As the mothers too often spend half of their life in intoxication, nakedness, and destitution, they cannot warm their infants by any other means than by libations of wine and spirits.

Influence of prostitution on health—Uterine hemorrhagies, tumours, and abscesses of the labia, recto-vaginal fistulæ, cancer of the womb.

Profuse hemorrhagies constituting disease, but without organic lesion, are frequent among prostitutes. In the space of six months twelve instances were remarked. At the Madelonettes one terminated fatally, and inspection proved that it was essential, and without trace of redness in the parts from which it proceeded. These hemorrhagies he ascribes to the influence of the profession.

The substance of the labia is liable to the formation of large tumours, which contain a thick albuminous liquid, or a melicerous substance of insupportably fetid odour, and the smell of which adheres for several days to any thing soiled by it.

Fistulæ of the recto-vaginal septum are not uncommon, and exceedingly difficult to cure. The author found five or six girls with this infirmity at the same time in the prisons; and it is estimated by the physicians of the establishment, that the number of females who exercise their vocation in Paris with this disgusting infirmity, might be thirty. They are almost always coincident with pulmonary consumption.

It is not wonderful that when this infirmity attains an extreme degree, and disables its unhappy subjects from pursuing their profession, they should seek an asylum to terminate their

miserable existence. They generally prefer the infirmary of the prison.

Though prostitutes be not exempt from cancer of the womb, that disease is with them much more rare than the profession which they pursue would lead us to expect. The disease may attack prostitutes or other females; but, instead of prevailing much among them, it is allowed by all the attendants to be a rare disease. This perhaps depends on the circumstance that cancer is a disease rather of declining age than early life.

Convulsions and spasmodic affections in prostitutes.—On this point some curious information is given.

At the end of the last century, the public women attacked by syphilis were treated at the Bicetre in a particular ward. According to the regulations of the house, they could remain there only six weeks; and so strictly was the rule enforced, that upon the arrival of the term, they were put to the gate of the hospital, cured or uncured.

The approach of this day made so deep an impression upon the minds of these unfortunate females, that they were all attacked at the end of the fifth week with convulsions and epileptiform fits, which they believed they could not resist, and which they ascribed to the mercury exhibited. This state they called *recovering from the mercury.*

For a long time these accidents proceeded without receiving much attention. When Cullerier obtained the place of first surgeon, he determined to put a stop to them. He gave strict orders to all the patients; caused two large tubs of cold water to be placed in the ward, to plunge in it head foremost all those who, whatever defence was made, should recover from their mercury; and, to carry the matter further, he arranged round a reverberatory furnace a series of irons of different shapes and sizes, by which he threatened to cauterize, in different parts of the body, the girls attacked with convulsions. The method succeeded, as it had done in the hands of Boerhaave; and for two or three years no more was heard of nervous accidents among these patients.

At present all those who treat, watch, and observe prostitutes, agree generally that it is extremely rare to remark in them hysterical symptoms or true convulsions. If in hospital or prison they sometimes appear, they must be ascribed to the deep despondency very common among these women, and especially to the fits of anger and the opposition which their mutual disputes occasion, or to a forced prolongation of their residence in hospital when they have urgent reasons to be at liberty. In the latter case, they roll on the ground, scream, and vociferate; but the state is never lasting.

These girls are sometimes observed to counterfeit nervous or convulsive states very dexterously, in order to escape from the inspectors, and recover liberty. What can be done with a woman who, in the middle of a street or square swoons, and, by contortions and cries, awakens the commiseration of the public.

The author thinks it extraordinary that females thus accustomed to a long course of sexuality should, upon its sudden and continued interruption, not present hysterical affections more frequently, and is disposed to explain the circumstance by referring it to the substitution *usûs manustuprationis nefandi.* This he thinks likely, because in the case of penitent females, who have returned into the convent of *Le Bon Pasteur*, hysterical suffocation and cerebral congestions, threatening to derange the intellects, and requiring particular regimen, are not uncommon. This state continues nearly two years, and then disappears completely. Leuret mentions the case of a penitent young female who became insane during her abode at *Le Bon Pasteur.*

Mental Derangement observed in some public females. One of the most striking facts furnished by the records of the Board of Morals and the prefecture of police, is the frequency of the observations on the weakness of intellect, and in the state bordering on derangement imputed to prostitutes. In the letters of their arrest, and in the reports of the commissaries, this state of the mind is frequently adduced as a reason, either for setting them at liberty, or procuring some mitigation of the punishment incurred for faults. This state is rarely observed iu the younger girls, and it is most commonly seen in worn out decrepit females reduced to the lowest stage of misery and brutalization. Many such persons are annually sent, as an act of charity, to prison, and without this precaution, would expire of hunger and cold in the street. These girls the author invariably found idiotical, foolish, imbecile, and brutish, whenever he visited the prison in the course of the winter.

From the register kept at the Salpetriere by M. Esquirol, it appears that during the five years from 1811 to 1815, 105 public females had been received in a state of mental alienation in that institution, on annual average of twenty-one. They entered each year in the following numbers.

1811, ...	15
1812, . . .	23
1813, ...	30
1814, . . .	25
1815, ...	12
	105

Of these women the youngest was in her sixteenth year, and the oldest in her sixty-second.

In classifying them according to the differences of age, each embracing periods of five years, they appear in the following order.

	Years.		Years.			Years.		Years.	
From	15	to	20	4	From	40	to	45	10
	20		25	15		45		50	5
	25		30	26		50		55	0
	30		35	25		55		60	1
	35		40	18		60		65	1

From this view the author thinks, that it clearly results that madness attacks not the young and commencing members of the sisterhood, but those who have endured all the hardships and miseries inseparable from such a mode of life. Sixty-nine persons, or nearly two-thirds of the whole number, become insane between the ages of twenty-five and forty years.

Of this derangement, the primary cause remained unknown in 37

It was ascribed to fear in 3

excess of libertinism in . . 3

consequences of parturition . . 8

extreme misery. . . 11

mercurial treatment . . . 2

abuse of wine . . . 13

deep mental distress . . 27

105

In 14 of the latter, or more than one-half, the distress was caused by the desertion and infidelity of lovers. One of the 27 became insane from the vexation which she felt at the dread of being recognized by some person from her own country. Another, who was delivered for the third time of a dead child, lost her judgment from the grief she felt at being unable to bring them up.

The forms of derangement are exhibited in the following table.

Melancholy in	36
Mania in	43
Dementia in	18
Diseases not characterized in . .	8
	105

Among the 36 melancholy insane females, 10 presented a distinct tendency to suicide, and required, in this respect, the closest inspection. Among the maniacs, in 8 cases hysterical

symptoms were observed, sometimes in patients from 16 to 25 years; in other instances, in those from 30 to 40. Erotic delirium is very uncommon.

Insanity in prostitutes has been often ascribed to the operation of mercury. But the researches of M. Cullerier showed long ago the falsity of this opinion, and if madness were frequent among these unhappy women, it is requisite to ascribe it to their mode of life, and the hardships of every kind inseparable from their vocation.

Notice of certain congenital infirmities, which, though singular, do not prevent them from following their profession. Several of the Parisian public females are lame, in consequence of some defective formation, diseased joints, or of unreduced luxations. Several of these women cannot move without crutches. Some years ago one came to the Dispensary with a wooden leg; in another, who could not move a step without balancing her person right and left in a painful manner, the legs were closely approximated to each other, so that the knees could be parted only six or seven inches; and, lastly, the author was informed of a girl, long on the lists, who was humpbacked, and padded so as to conceal the deformity. He thinks that one reason why creatures, who it must be imagined carry on the occupation with pain and difficulty, pursue it, is that if they become pregnant, they turn the pregnancy to a better account than under other circumstances. He saw among the sisterhood a surd-mute, and a girl who, having lost an eye in a quarrel, had substituted for it an artificial eye, which gave her a most hideous appearance.

Scrofula is very prevalent among these women; and as it always adds to the venereal symptoms, it contributes most remarkably to encumber the infirmaries with them.

Frequency and nature of general and common diseases among prostitutes.

Among 392 girls treated at their own houses, generally kept in bed for a month, and treated by the physicians of the Dispensary, the following were the different numbers labouring under different diseases.

Catarrhs threatening consumption and other affections of the chest,	87
Acute pneumonia and pleurisy,	15
Apoplexy and cerebral affections,	5
Articular rheumatism,	13
Stone in the bladder,	2
	122

Over,	122
Cancerous enlargement of the kidney,	1
Ophthalmia,	11
Hemorrhagies, and diseases of the womb,	41
Gastritis, angina, and lesions of the alimentary canal,	58
Wounds, contusions, and effects of blows,	90
Fevers,	46
Rose, blebs, eruptions, &c.	23
	392

The accounts, in the public hospitals, are not kept in such a manner as to afford any positive conclusions on the diseases of these women.

From a number of data he calculates that the chances of illness are such, that each girl will spend about ten days annually in hospital, or under the care of a medical attendant.

He maintains, however, that the profession is not by itself insalubrious. The facts which he has surveyed, he thinks, warrant the conclusion, that, notwithstanding so much excess, and so many causes of disorder, their health resists more than that of ordinary women who have children, and labour in their household duties. They have, in short, he thinks, bodies of iron, which allow them to encounter with impunity excesses which would speedily destroy other women.

It is further a painful reflection to think, that industrious and virtuous females, who lead lives of diligence and activity, though in sedentary professions, certainly do not enjoy health nearly so good as these women, who spend their lives in debauchery, vice, intemperance, and idleness. It appears from these inquiries, indeed, that the sedentary life is much more injurious than many other causes to health. But it must be kept in mind, that the whole course of the lives of public females is not, in this inquiry, fully unfolded. Prostitution is, indeed, to many of them merely an episode or transitory state; and numbers quit the vocation, or, as it is styled, are erased, and are then lost sight of. In this case, a deep veil falls over the whole of that train of consequences and effects which may, even at a later period, succeed the irregular and pernicious habits of a youth of depravity.

Here, however, at the close of this chapter, we must make a temporary pause. It is unnecessary for us to follow the laborious author in his view of the houses frequented and occupied by these females; as this would be rather out of our way. At a future occasion, however, we may direct the attention of our readers to some other points in these volumes, not undeserving the consideration of the medical philosopher.

We cannot conclude without saying, that the present work

proves, among other things, one point most unequivocally. This is, that the system of licensing and placing under regulations public women, though it possess the advantage of enabling the police, and the authorities of the country, to know more accurately, than they could otherwise do, the practices and haunts of these persons, and perhaps acts, in many instances, as a preventive check to the commission of misdemeanours and crimes; though it even supplies, in many instances, more efficient and better assistance to these females themselves than could be procured under a different system; and may, in a few cases, prevent them from proceeding to those extremities which sometimes occur without the direct interference or protection of authority; —yet completely fails as a means of restraining vice and immorality, and is wholly ineffectual in preventing the diffusion of licentious habits among the community at large.

The present work contains internal evidence that, notwithstanding the practice of licensing and regulating prostitutes is in full energy, and under the best arrangements in Paris, yet the extent of public immorality seems very great, and expands in every direction through the community. There, indeed, are not only the public recognized means of immorality, but manifold private and little known sources of the same corruption. The former, indeed, seem to be maintained by the latter, and instead of checking their growth and stopping their progress, as had been expected by the proposers and defenders of the system, they seem rather to act as means of encouraging them. Both systems are indeed acting in combination.

It is hardly possible to conceive a stronger argument against the principle of licensing and regulating a system of female licentiousness than this constitutes.

The present work also contains abundant evidence confirmatory of the truth of another inference which has already been brought forward in the course of these observations. It is a most clear result, that by far the most efficient cause of female corruption is gross ignorance and want of education. And here we understand, not mere education in the ordinary sense of the term, but a knowledge of the necessity of moral duties, and the good consequences of adhering rigidly to their observance. Many of the unfortunate females of whom M. Parent Duchatelet speaks, appear never to have known what chastity is; that it is a purity not merely corporeal but mental; and thus, from ignorance of the first of female obligations, have progressively descended to the most pitiable and irrecoverable debasement. In others, in whom the knowledge of the value of this virtue was still not entirely dormant, it seemed to convey only the more poignant and bitter a sense of the miserable state of those who no longer possessed it.

ART. III.—*Report from the Select Committee on Medical Education; with the Minutes of Evidence and Appendix. Part III. Society of Apothecaries, London.* Ordered, by the House of Commons, to be printed 13th August 1834.

We have just received the third part of the Report of the Committee of the House of Commons on Medical Education, in reference to the Society of Apothecaries, and hasten to lay an abstract of it before our readers. It consists of two parts, the one containing parole, the other documentary evidence. The former, with the exception of the information communicated by Dr Christison, is characterized by a degree of arrogance, ignorance of subjects on which the most dogmatical assertions are made, inconsistency, prejudice, and inconclusive reasoning, which *a priori* we should have considered it utterly impossible for any body of tolerably educated professional men, in the present day, to have exhibited. But this is not all. The evidence, such as it is, discloses facts which imperatively call upon the Legislature to deprive this incorporate body of those exclusive privileges which they have so long enjoyed. These, we are aware, are grave charges which it is incumbent upon us to establish by the clearest evidence. But, before we conclude this article, we shall convince every impartial reader, in the most unexceptionable manner, by the testimony of some of the leading members of the Worshipful Company, not only that these gentlemen themselves are incompetent to direct the medical education of intended practitioners, but that the incorporation has in many instances failed to perform its duties, while in others it has made use of its privileges in a manner not only obnoxious, but unjust, and utterly in contravention of the spirit of the Act of Parliament which conferred them.

Before proceeding, however, to this task, it may not be amiss to lay before our readers some historical information respecting the Apothecaries' Company.

By letters-patent, under the Great Seal of England, dated 9th April, in the fourth year of his reign, James I. ordained and granted, "that all and singular freemen of the Mystery of Grocers and Apothecaries of the city of London, and their successors for ever thereafter, for the better ordering, governing, and rule of men of the Mystery of Grocers and Apothecaries of the city of London, and for the profit, commodity, and rule of the good and honest, and for the fear and correction of evil, and deceitful, and wicked, should be and remain one body corporate and politic in substance, deed and name, by the name of the Wardens and Fellowship of the Mystery of Grocers of the city of London." In the 15th year, however,

of the same reign, a separation between the two trades was effected by his Majesty granting a new charter. By this 122 individuals therein named, and all other persons "brought up and skilful in the art, faculty or mystery of an apothecary, and the same art, faculty or mystery at this time exercising, and being freemen of the Mystery of Grocers of the city of London, and with the same jointly and promiscuously, into one body corporate and commonalty, made and constituted, or being freemen of any other arts, faculties or mysteries in the city of London, and with the same into one body corporate, society or commonalty, heretofore made incorporated or constituted," and all their apprentices legally bound, were separated from the grocers, and formed into a new incorporation by the name of THE MASTER, WARDENS, AND SOCIETY OF THE ART AND MYSTERY OF APOTHECARIES OF THE CITY OF LONDON. The reasons assigned in this charter for the separation are thus expressed. "For as much as it is signified unto us, on behalf of our well-beloved subjects, the Apothecaries of our city of London, and also affirmed and approved unto us, by our well-beloved Theodore de Mayerne, and Henry Atkins, Doctors of Physic, our discreet and faithful physicians, that in these latter years, very many empiricks, and unskilful and ignorant men, and unexperienced, do inhabit and abide in our city of London, and the suburbs of the same, which are not well instructed in the art and mystery of apothecaries, but are therein unskilful and rude, do make and compound many unwholesome, hurtful, deceitful, corrupt and dangerous medicines, and the same do sell in many parts of this our kingdom of England, and the same do daily transmit, to the abuse and scandal, not only of them which embrace the knowledge of physic, and of the learned physicians of this our realm of England, professing the same, and of our Apothecaries of our city of London, being educated and expert in the same art and mystery, but also to the great peril and daily hazard of the lives of our subjects." From this extract the reader will see that the putting down of quackery, the procuring of pure drugs, and the faithful compounding of physicans' prescriptions, were the objects sought to be attained by the charter now alluded to. By it the society was empowered to purchase and sell lands, to sue and be sued, to have a common seal and hall, to elect a master, wardens, and assistants, clerk, and beadle, and to sell drugs. The privileges of the College of Physicians, and those of the city of London were expressly reserved, and it was declared, "that expert and approved chirurgeons may exercise their art and faculty, and use and enjoy all and singular their proper practice, as much as belongeth and appertaineth to the composition, and applica-

tion of outward salves or medicines only, so that they do not vend or expose to sale to others, such salves or medicines according to the common manner of the Apothecaries of our city of London." The masters, wardens, and assistants for the time being were invested with the power of making laws and by-laws, for the regulation of the corporation and its concerns. In making laws, however, respecting medicines, they were bound to take the advice of the president and censors of the College of Physicians. Freemen of the Grocers Company or of any other arts, were prohibited from keeping apothecaries' shops, as well as all persons who had not served a seven years apprenticeship to some freeman apothecary, and been examined and found competent by the master, wardens, and president of the College of Physicians, or such physicians as he should appoint for the performance of the duty. Extensive powers were also granted them, to "enter into any shop or shops, house or houses, cellar or cellars, of any persons whatsoever, using or exercising the art or mystery of apothecaries, or any part thereof, within the city of London, or within seven miles of the same city, as well within the liberty as without, where any medicines, simple or compound, wares, drugs, receipts, distilled waters, chemical oils, syrups, conserves, electuaries, pills, powders, troches, oils, ointments, emplasters, or any other thing whatsoever, which belong or appertain to the art or mystery of apothecaries, shall be probable and likely to be found, and to search, survey, and prove if the same * * * be and shall be wholesome, medicinable, meet and fit for the cure, health and ease of our subjects; and also * * to try all and singular persons professing, using or exercising, or which hereafter shall profess, use, or exercise the art or mystery of apothecaries, or any part thereof, within the aforesaid city of London, the liberties or suburbs thereof, or within seven miles of the same city, as well within liberties as without, touching or concerning their, and every of their knowledge, skill, or understanding, in the aforesaid art and mystery of apothecaries, and to remove and prohibit all those from the exercise, use or practice of the said art or mystery, whom hereafter they shall find unskilful, ignorant or insufficient, or obstinate or repugnant to be examined, by virtue of these presents, in the art or mystery aforesaid." They were also authorized to burn before the offenders' door, all medicines or drugs which they should "find unlawful, deceitful, inveterate, out of use, unwholesome, corrupt, unmedicinable, pernicious or hurtful; and to lay, impose and execute punishments and other pains and penalties by fines and amerciaments upon such offenders, according to their sound discretions, and the ordinances by them and their successors, so as aforesaid, to be made and appointed."

It is evident from the abstract which we have given, that, as we have already stated, the sole object in granting the charter, was to secure a supply of pure medicinal substances, and the due and faithful compounding of them according to the formularies or prescriptions of physicians, and that the apothecary derived no title whatever from it to practise either medicine, surgery, or midwifery. The apothecary was a mere appendage to, or servant of the physician; and many of them in olden times had actually acted in this capacity, and derived all their knowledge from the casual instructions of their masters. But besides compounding medicines, the apothecary in many cases was called upon to administer them, or see them administered, and in this manner picked up a smattering of knowledge which made him useful in trifling cases, or when a physician could not be procured, much in the same manner as a client will in the absence of his legal adviser, frequently consult his clerk. This usurpation met with some opposition on the part of the physicians; but, being sanctioned by the community, was persisted in by the apothecaries, whose increased importance was evinced by the acts of Parliament passed to exempt them from serving offices.

In what manner the society fulfilled its duties within the bounds of its jurisdiction, we have no means of knowing accurately. But it may be safely inferred, from the number of complaints which were made, that they were inefficiently performed. It will be observed, that the charter gave the society no power beyond London, and 7 miles round; and thus, though throughout the country the lieges were left to the mercy of any unprincipled and ignorant man who chose to designate himself by the title of Apothecary, or Surgeon-Apothecary, as suited his fancy, the society had no means of putting an end to the evil, which was continually increasing. At length the well-educated of the body, sensible of the disgraceful situation in which they were placed, thought of the means of checking the progress of this evil; and an association was formed for the purpose both of protecting the public, and elevating the statutes of the society. The following extracts from the evidence of Dr. Burrows, exhibit the true state of the great body of the profession at that period, and the objects of the association.

"239. What was the state of the medical profession as regarded general practitioners before the act of 1815? There were [was] a great number of individuals practising as general practitioners, who had certainly not received a competent education, and, therefore, were not acting in a manner creditable to themselves, or beneficial to the public.

"240. You acted as chairman to the General Association of Apothecaries and Surgeon-Apothecaries of England and Wales? I did.

"241. Did you principally conduct the correspondence of that association with the practitioners of England and Wales? Wholly; there was a secretary, but I conducted the whole of it.

"242. Was the act of 1815 occasioned by the proceedings of that association? Unquestionably.

"243. What were the evils to remedy which that association was formed? I have extracted the principal grounds: First, that persons were allowed to practise as surgeons, as apothecaries, and as midwives, to dispense medicines and to compound prescriptions in England and Wales, who had never received any education to fit them to exercise those functions whereby the public were much injured, and the character of the medical profession was lowered.

"244. Their principal object was to reduce the number of those who were practising without having received any medical education at all? Surely, not only to reduce their number, but to prevent them from practising altogether. The second complaint was, that there was no superintending power to examine into the qualifications of the persons entering upon those several branches of the profession; that in consequence of this lowering of the character of the general practitioner, it was exceedingly difficult to procure apprentices; that as the general practitioner had no legal right to charge for his attendance on the sick, he was compelled to resort to an expedient for remunerating himself, exceedingly revolting to the feelings of a liberal mind; that a most cruel system of farming the medical attendance on the parochial poor to the lowest bidder, without any regard to the proper qualifications of the party tendering, had become general. These were the five particular points that the practitioners pressed upon the attention of the association."

The association began to meet in 1812, and in December of that year petitioned Parliament. In March 1813, a bill was introduced into the House of Commons; but, after being read a first time, it was withdrawn, in consequence of the opposition offered to it, principally as would appear by the Colleges of Physicians and Surgeons. The Society of Apothecaries professed to act according to the instructions which might be given to them by the College of Physicians, but remained to a certain degree neutral. In the following year, the bill was again brought in, and several clauses introduced into it, of which the members of the association did not approve, but to which, finding that they could do no better, they were obliged to assent. The opposition of the Colleges seemed to be withdrawn at the intercession of Mr George Rose, as it was through him that it was communicated to the association, that they had agreed to the framing and introduction of a bill; and he became the organ of communication between the parties. Nine-tenths of the members of the association were surgeons, and some of them belonged to the Society of Apothecaries. In 1815, the bill was

passed, which has given rise to so many just complaints, both as to its provisions, and as to the manner in which it has been carried into effect, and which it seems to have been the determination of the witnesses whose evidence we shall presently examine, to exhibit as being perfect in both.

This act (55 Geo. III. cap. cxciv.) confirmed the whole of the charter of James, except in so far as it repealed that portion which directs the Master, Wardens, &c. to enter the shops of apothecaries, examine medicine, and impose penalties, and substituted for it a power to enter the shops of every apothecary in England and Wales, at any time during the day, to test the various drugs or medicinal substances found therein, to destroy such as they should find to be "false, unlawful, deceitful, stale, unwholesome, corrupt, pernicious or hurtful," and to impose penalties upon offenders; "for the first offence the sum of five pounds, for the second offence the sum of ten pounds; and for the third and every other offence the sum of twenty pounds." Additional powers were also granted, and duties imposed. Section fifth, which some of the members of the Apothecaries' Company make a boast of violating, enacts, "that if any person using or exercising the art and mystery of an apothecary, shall at any time knowingly, wilfully and contumaciously, refuse to make, mix, compound, prepare, give, apply, or administer, or any way to sell, set on sale, put forth or put to sale to any person or persons whatever, any medicines, compound medicines, or medicinable compositions, as directed by any prescription, order or receipt, signed with the initials in his own handwriting" of any physician licensed to practise physic by the Royal College of Physicians of London, or either of the Universities of Oxford or Cambridge, the offender, on complaint being made by the physician within twenty-one days, shall, unless he can show a justifiable reason, on conviction before any Justice of Peace, "forfeit for the first offence the sum of five pounds; for the second offence the sum of ten pounds; and for the third offence he shall forfeit his certificate, and be rendered incapable in future of using or exercising the art and mystery of an apothecary, and be liable to the penalty inflicted by this act, upon all who practise as such without a certificate, in the same manner as if such party so convicted had never been furnished with a certificate, enabling him to practise as an apothecary; and such offender, so deprived of his certificate, shall be rendered and deemed incapable in future of receiving and holding any fresh certificate, unless the said party, so applying for a renewal of his certificate, shall faithfully promise and undertake and give good and sufficient security that he will not in future be guilty of the like offence."

Sections xiv. and xv. enacted "that from and after the first day of August, one thousand eight hundred and fifteen, it shall not be lawful for any person or persons, (except persons already in practice as such) to practise as an apothecary in any part of England or Wales; unless he or they shall have been examined by the Court of Examiners, or the major part of them, and have received a certificate of his or their being duly qualified to practise as such, from the said court of examiners, or the major part of them as aforesaid, who are hereby authorized and required to examine all person and persons applying to them for the purpose of ascertaining the skill and abilities of such person or persons in the science and practice of medicine, and his or their fitness and qualification to practise as an apothecary, * * * provided always, that no person shall be admitted to such examination, until he shall have attained the full age of twenty-two years. Provided always * * that no person shall be admitted to any such examination for a certificate to practise as an apothecary, unless he shall have served an apprenticeship of not less than five years to an apothecary, and unless he shall produce testimonials to the satisfaction of the said court of examiners, of a sufficient medical education, and of a good moral conduct."

The act also provides for the appointment of a Court of Examiners, to act under an oath, specifies the qualifications necessary to render a man eligible to be appointed an examiner of drugs or candidates, and the manner in which all regulations small be made; enacts penalties, points the application of these, and fees received on examination, and limits actions to six calendar months after the offence, &c. Chemists and druggists are excepted from the operation of the act, and the rights and privileges of the Universities of Oxford and Cambridge, the Royal College of Physicians, and Royal College of Surgeons, are preserved to them.

This obnoxious act differs from the charter in nothing save the granting of additional powers to a body which had failed in performing its duties, and which, so far from being prepared to give effect to its provisions, seemed to be overwhelmed with the trusts and privileges committed to it. Clear proof of this is found in the testimony of Dr Burrows, who was the principal agent of the association to which the Society of Apothecaries is indebted for the act. He was asked, if between the passing of the act and his retirement from the board of examiners, the Society of apothecaries were disposed to act in carrying the statute into effect, in a manner conducive to the public interest? and his reply is, "undoubtedly so, generally speaking; most decidedly. It required some little trouble to convince them of the course they ought to pursue. In fact it seemed to come upon them by surprise. For although they had solicited the bill, yet they had not prepared their minds for the extensive privileges

which that act gave them, nor for the great benefit that might accrue to the public, by carrying the act into effect." He then states, that the greater part did not know the important duties and powers that had devolved upon them. In a subsequent examination, he affirms that "the members of the court of examiners differed extremely in their interpretation of the act," and that he "thought that many of them had not sufficiently prepared themselves to administer a statute which was so important and gave them such extensive privileges. They had obtained the act, but * * did not understand the spirit of it." He however asserts, that "they have carried the act into effect, in the most material matters, in a manner which has been most highly conducive to the benefit of the members of the profession, and to the benefit of the public." How far this statement is well founded we shall have an opportunity of showing in the course of this article. In the meantime we proceed with our introductory remarks.

We have already stated, that an apothecary at first was nothing more than the name really implies, an individual who kept a supply of medicines and compounded them as directed. The above mentioned act in reality made him superior to a physician, inasmuch as it not only conferred the privilege of practising, but also of compounding and dispensing medicine, which no graduate of any University save Oxford and Cambridge is permitted to do, unless a fellow or licentiate of the Royal College of Physicians of London, in which case the provision is nugatory, as this body prevents its members from acting as general practitioners and dispensing medicines. Mr Nussey, indeed, states in his evidence that it was decided in the reign of Queen Anne, in the case of the College of Physicians, against an individual of the name of Rose, that an apothecary was competent to ascertain the nature of a disease and to treat it, and that he can refer to some proof of that; into which, however, he does not enter. In answer to the question, whether this decision goes so far as to define what an apothecary then was, and thence to enable us to define what an apothecary is now?" he says, "at the present moment there are very few individuals practising pharmacy exclusively, perhaps not more than half a dozen in the whole town. But the apothecary strictly is still an individual who simply attends the sick and treats disease." The examination then proceeds. "Is he a person who attends an individual affected with some internal disease, not requiring external or manual aid, who prescribes for the cure of such complaint and supplies the medicine? He is. The supplying of medicine is an essential part of it? That is as it may happen. In my situation in life, I am sometimes

called upon to prescribe; to give my opinions without sending medicine. You are not the only instance of that? I speak of myself, there are others. What is the definition of an apothecary as distinguished from other practitioners? That which the chairman has already stated, is the meaning I apprehend of the word apothecary." So then, the apothecary, according to Mr Nussey, the chairman of the Apothecaries' Company, acts in many respects as a physician. *He treats any internal disease not requiring external or manual aid.* Now this will evidently prevent him from treating the greater number of inflammatory complaints, in fact all complaints which require bloodletting in any form. Definitions, as Dr Johnson long ago remarked, are hazardous; and in the present case Mr Nussey, in endeavouring to aggrandize the apothecary, has precluded him from treating many of those diseases in which the aid of the general practitioner is most frequently required. The apothecaries, however, do not confine themselves within the narrow limits prescribed for them by their chairman. They engage in the practice of midwifery, and that, notwithstanding it is declared by one of the court of examiners, that the delivery of a woman is considered a surgical operation, and according to the opinion of counsel, they have no power to examine a candidate for their licence, on his obstetrical knowledge.

By another member of the court, Mr J. Bacot, it is admitted that although it is necessary that every general practitioner should be well instructed in surgery, many apothecaries are quite ignorant in this respect. Thus a licentiate of the Apothecaries' Company may practice midwifery and surgery without having his qualification so to do, tested by any board. It is true the witnesses seem to regret this state of matters, but it does not appear that any very active steps have been taken to obviate the evil. It may urged by way of palliation, that most of these licentiates pass the College of Surgeons; but there is no power to force them so to do; and this at all events would be no guarantee that they are possessed of any knowledge or skill in midwifery. They seem to have been quite content to leave matters as they were, satisfied that their licentiates possessed a monopoly of general practice. From their not asking power to examine the candidates for their license on surgery and midwifery, it would appear that they conceived less mischief to be likely to result from an ignorant individual treating a case of strangulated hernia or retention of urine, or managing a delicate woman in the most critical situation of her life, than in failing to give an ointment its proper consistence, or a draught an agreeable colour and flavour. With them a knowledge of pharmacy and the external characters of drugs would appear

to be the most important to be acquired; but the reader will find, in a subsequent part of the present article, that these patrons of pharmacy are ignorant of some approved processes in pharmacy; and that even the examiners themselves are glad of the assistance of their chemical operator, in answering some questions on the subject put by a non-professional gentleman.

Before concluding these preliminary remarks, it may not be unnecessary to state, that the apothecaries of England consist of two distinct classes of individuals, the Licentiates and the Members. The former have no share, either in the management of the funds of the corporation, or in the election of office-bearers, the regulating of the course of study, or the execution of the act of 1815. We wish it to be understood that in this article our remarks have no reference to these individuals.

The privileges of the members of the incorporation may be thus briefly stated. 1*st*, The Master, Wardens, Examiners and Treasurer, are chosen from among them. 2*d*, Their apprentices have the advantage of attending lectures on Materia Medica, and Botany, and during six months of the year of going into the country, in company with a demonstrator appointed to instruct them in botany, refreshments being allowed them at their first two meetings. At the end of their apprenticeship, they may enter the incorporation free of expense, while others must pay a fine of one hundred pounds Sterling. This last privilege, however, seems not to be worth L.100, inasmuch as no one had entered the incorporation by redemption, for seven years previous to March 1834. 3*d*, The Master, Wardens, examiners, &c. have the power of regulating the affairs of the society, and the course of study to be pursued by candidates for their license. To them also is committed the carrying into effect the other provisions of the act of 1815.

Our readers will now be in a condition to examine with us the evidence adduced by different members of the Society of Apothecaries, who have come forward to communicate information to the Committee of the House of Commons, respecting medical education, and other matters connected with the profession. In the remainder of this article, then, we shall consider *first*, how the public duties entrusted to the society of apothecaries have been fulfilled; *secondly*, the suggestions offered by the witnesses respecting medical education; *thirdly*, we shall examine those charges and insinuations which have been made against the Edinburgh School; and in conclusion, we shall show that we had good grounds for making those assertions regarding the incorporation, and several of its influential members, which we felt it our duty to do at the commencement.

1. In what manner has the Society of Apothecaries

EXERCISED THOSE PRIVILEGES AND FULFILLED THOSE DUTIES WHICH WERE ENTRUSTED TO IT BY THE CHARTER OF JAMES I. AND THE ACT OF 1815? The duties of the society may be classed under four heads. 1*st*, To examine the medicinal articles kept by apothecaries; 2*d*, to prosecute unqualified practitioners; 3*d*, to prescribe the course of education to be followed by all those intending to apply for a license; 4*th*, to examine candidates; 5*th*, to keep at the Hall a supply of pure articles, used by apothecaries. We shall now inquire how each of these duties has been fulfilled.

1. *Examination of apothecaries' shops.* The following extracts will show how this is conducted.

"How is the visitation of apothecaries' shops by the wardens of your society, in company with the censors of the College of Physicians, conducted? The physicians call upon the society of apothecaries twice-a-year, I think it is, to send their wardens to assist them in the examination of the shops.—Is the day fixed? The day is fixed, it is in the summer and the autumn of the year. Is it pretty well known before hand on what day the visit will take place? Yes it is; but there has been some alteration made lately; one of the examinations is postponed to a later period of the year; they were very nearly together.—About what period of the year is it? I think it is this very month (June). In short, both have taken place in this very month; but, upon the last examination, it was thought better to postpone the second examination till towards the end of the year.—How many shops are generally visited in a day? I daresay from forty to fifty. I was on those examinations last year twice.—How many were visited in a day on that occasion? I should think between forty and fifty.—Do you keep a record of the names of the shops visited? The beadle of the College accompanies the deputation, and takes the name of the individual keeping the shop, and minutes any observations that are made by those who examine, and on the appearance of the drugs.—And that book is kept? Yes, I suppose so; but it is in the keeping of the College of Physicians.—At what hour of the day does the visitation commence its proceedings? I think somewhere about one o'clock.—And when does it end? It ends about six.—How long, upon an average, does the visitation of each shop last? Perhaps a quarter of an hour—not so much.—Besides the visitations of the shops of apothecaries and druggists, which the officers of your society make in company with the censors of the College of Physicians, do they sole, and unaccompanied by the censors, make any similar visitations, by virtue of the authority granted to them by the act of 1815? Yes; we are bound by the charter, as well as the act of Parliament of 1815, to visit apothecaries' shops, but not those of druggists; we have no power over the druggists.—Are you sole, and unaccompanied by the censors of the College of Physicians, in the habit of visiting apothecaries' shops? Certainly.—Upon what officer does that duty devolve? It devolves upon the Court of Assistants; or, if necessary, upon some efficient

men of the livery of the society. A power is invested in the master of the society to appoint and direct certain individuals to undertake this office.— * * * * Is a search by the members of your society, so appointed, constantly going on; or is it only on extraordinary occasions that it is directed to be made? For a great many years a search was made every year, but lately it has been but once in two years.—But one day, once in two years? One day, or more than one day, depending entirely upon the district they visit, and upon the number of visits they have to make. We have now and then gone thirty miles from London, and that cannot be accomplished in one day.—Do they now, by virtue of these powers, make visitations all over England and Wales? They do not, and never have done so.—Have they not the power, by virtue of the act 1815? They have; they have the power of appointing searchers in the country.—You have stated that you do not visit druggists' shops. Unattended by the censors of the College of Physicians, have you any power to visit these shops; attended by the censors you do visit them? Yes, we do.—Your search in company with the censors is confined to the city of London? Yes. —Is visiting, twice-a-year, effectual in preventing, within the precincts of the city of London, the sale of bad or spurious medicines? My opinion upon that subject is this, that it is not by any means so efficient and complete a law as is desirable; that there are many ways and means of passing off adulterated medicines which no search can prevent. I do not see how it is possible to prevent it. —No search, you say, can prevent it? It is not, therefore, to the imperfection of the present law of search, but to the principle of the law of search, in general, that you object? I think I may state, with regard to the present race of general practitioners, that, for the most part, they are men of such standing and acquirements as scarcely to be supposed capable of fraud.—The question refers to the use of visitations, of such especially as are made in the city of London, by your wardens and the censors of the College of Physicians. No search, you say, can prevent the sale of adulterated medicine on the part of those who are disposed to sell it? I think not. I think it fails in accomplishing that purpose; that it may do some good is possible; but there are (is) plenty of opportunities for frauds, if people are disposed to commit them, in spite of searchers.—Is not the search in question less efficient than it might otherwise be, owing to its being made on two days only in the year, and those days occurring at fixed periods, so that all parties whom it may concern are duly apprized beforehand when they may expect a visit? Yes, I think so.—The mode, therefore, of conducting the search renders it still more ineffectual than, even if well conducted, it still must be? I think so.—As the search that is made by your society of all the apothecaries' shops in England and Wales takes place but once-a-year, [we are told above that this search never took place] is not that still less efficacious than the search that you make together with the physicians? Yes, I must admit that.—Are your visitors provided with tests, or other means of making extemporary

trial of the purity of any articles in the Materia Medica? Some few tests that apply to specific medicines; poisonous medicinesf or example, and medicines of specific virtues.—Does the search, either that which you make singly, or that which you make in company with the physicians, afford to the public any reasonable degree of security against the sale of bad or spurious medicines? I should think not, if the disposition existed to sell such medicines."—Evidence of John Nussey, Esq., 38–68.

In this case we find a most important duty in some cases altogether neglected, and within a limited district performed in a most careless and inefficient manner. Mr Nussey makes an attempt to palliate this negligence by stating first, that the law is inefficient, *secondly*, that it is useless and would be so in any case, in consequence of its being impossible to convict the guilty; and, *thirdly*, that the general practitioners are of such standing and acquirements as to place them above suspicion. He is then forced to assert that such searches do some little good, even when conducted on the present absurd plan, and that more good would be effected if the search were to be more effectual. Last of all, to revert to his first stated opinion that the search doest not give the public any reasonable degree of security against the sale of bad or spurious medicines, omitting all consideration of these contradictory opinions unbecoming the head of a society invested with so extensive powers, we cannot see upon what principle the incorporation are justified in not fulfilling a duty positively imposed upon them by law, or if they possess a dispensing power, upon what principle they refuse to exercise it in other cases where it would be attended with positive advantage to the community. We are unwillingly forced to conclude, that had the apprenticeship clause entailed on the incorporation as much trouble and as little profit as that which directs them to search apothecaries' shops, we would have seen it fall into desuetude, and have been favoured with many very cogent or at least ingenious reasons for its being allowed to do so. We cannot pass over this part of the evidence without calling the attention of the reader to the doubt and ignorance, either real or affected, displayed by the master of the Apothecaries' Company, in respect to matters on which no one could possibly suspect that there could be the smallest hesitation in the representative of the Society. He speaks with hesitation of the number of times in the year the physicians examine the drugs of venders of medicine, and in answer to the next questions states positively that the search is made twice, and that the seasons are summer and autumn. He next discovers that they both take place in June, and so on. Now, if there was a single point on which the Master of the

Apothecaries' Company could convey information, we would have thought that it would be in regard to its powers and privileges. We shall see, however, hereafter that his knowledge of such points is accurate and extensive, compared with that displayed by him regarding others, and that he knows, perhaps, less of the educational course of the Edinburgh College of Surgeons, than a first-year's Edinburgh student of the qualifications necessary for him to possess before he presents himself before the examiners of the Worshipful Company.

It is unnecessary for us to quote other evidence to convince our readers that the Society of Apothecaries have failed in the performance of a duty, the due fulfilment of which is of the utmost importance to the community. We cannot see how it is at all more difficult to detect spurious medicine, and bring the guilty to punishment, than it is to discover when porter or ale has been adulterated. But the difficulty of performance will not excuse its not being done at all. We are told that a visit to a shop lasts less than a quarter of an hour; but, granting that the search lasted fifteen minutes, we contend that it is utterly impossible even to have ascertained by the label the contents of each bottle and drawer in a shop of the smallest dimensions, much less to have removed the stoppers and opened the drawers. It would appear from Mr Nussey, that they carry some few tests applicable to specific medicines, and the instance which he gives of specific medicines is poisonous medicines, and medicines of specific virtues. It becomes absolutely ridiculous to see language so loose and unscientific made use of by the representative of a society, the office-bearers of which arrogate to themselves the merit of being the only board which ascertains effectually the knowledge possessed by a candidate of pharmacy, materia medica, and practice of physic. Verily we are not astonished, that so many who have been educated at the Northern schools, have been rejected by the learned Society of Apothecaries. For ignorant persons with authority on their sides, and want of intellect in their heads, it is easy to reject those who are better informed. But enough of this for the present. We shall return to the subject in the course of the present article. Let us now endeavour to ascertain.

2d, In what manner are individuals selected for prosecution, and how are these prosecutions conducted?—To convey to our readers a proper view of the harshness with which this power of prosecution has been exercised, and that too, in direct opposition to the spirit both of the charter and act, we cannot do better than quote the following passages from the evidence before us, the more that it affords an ample proof of the truth of the charges of inconsistency and incompetency which we made against the heads of the society at the com-

menecement of the present article. Our first extract shall be from the evidence of John Nussey, Esq.;—

"What is the principle that has guided your society in selecting objects for prosecution, as violators of the provisions of the act of 1815? The mode in which that is conducted is also by a committee.—Who is the chairman of that committee? The master for the time being.—Therefore you are at present the chairman of that committee? Yes.—What then is the principle which has guided that committee in its selection of individuals for prosecution? No fixed principle. Informations are sent to the clerk of the society, who lays them before the committee. On their next meeting, the cases are taken into consideration by the committee, and instructions are given to the clerk to proceed or not to proceed, as the case may happen.—Has the Society been merely passive in receiving such informations, or has it been active in promoting inquiries as to who are violating the act in different parts of the country? The Apothecaries' Society have had no occasion to be over-active in making inquiries; for there have been abundant informations laid before them, more, in point of fact, than they have had the means of prosecuting. We pay an individual and a clerk an annual sum for looking after such cases in London and its neighbourhood.—Does the number of persons who practise as apothecaries, in violation of the act, much exceed the number that you have prosecuted? That is most likely, I think.—Has your Society ever endeavoured to ascertain, by causing local inquiry, to be made in every part of England and Wales, who the persons are that are actually in practice, which of them practise as apothecaries, and how many do so with, and how many without, the requisite qualification? No. I do not know that the Society have employed any person particularly for that purpose. I believe that during the trials that have taken place in various parts of the country, our clerk has been furnished, when he has attended those trials, with information respecting individuals in that neighbourhood; and I may state, that since this committee began to sit, the medical public have been much more in the *qui vive* with regard to unqualified individuals than before. For we have received in the last three months more informations on this subject than at any previous time.—Do you recollect what is stated in the preamble to the statute of 1815, to be the object of the statute? 'And where as much inconvenience has arisen from great numbers of persons of many parts of England and Wales exercising the functions of an apothecary, who are wholly ignorant and utterly incompetent to the exercise of such functions, whereby the health and lives of the community are greatly endangered, and it is become necessary that provision should be made for remedying such evils.'—The object of the statute being to prevent those persons from exercising the functions of an apothecary who are *wholly* ignorant and *utterly* incompetent to the exercise of such functions, are the individuals whom the society has selected for prosecution those particular

individuals, who, out of the many violators of the statute, appeared upon inquiry to be the most ignorant? I should certainly say so, for the most flagrant cases have been always the first selected for prosecution.—Yet if the choice of the persons to be prosecuted by the society depends, as you say that it generally does, not upon its own impartial inquiries, but upon the informations which other parties, oftentimes interested parties, choose to lay before it, is not this the result, that prosecutions fall upon the heads, not so much of the most incompetent as of the most successful unqualified practitioners? I think that such men have seldom or never been selected for prosecution; and the returns made to this committee, as to the number of penalties recovered, would establish that point. I believe that the society have received but L.130 in penalties from the first passing of the Act of Parliament; therefore they could not be men of very considerable eminence, or of very great reputation, who were prosecuted."

An extract is then produced of a letter from a country practitioner, who, after having received a respectable medical education for the time, but not, as far as appears from the document, having undergone any examination, was, after being nine years settled in practice, prosecuted, and convicted, and subjected to a penalty of L.20 and costs, the latter being L.400. To enable him to dispense with impunity, he took a qualified partner; but notwithstanding this, he was, at the date of writing, threatened with another action. The examination then proceeds as follows:—

"If this statement in this letter is to be believed, it would appear that this gentleman underwent a very respectable course of medical education, and that the Society therefore does not confine its prosecutions to the most ignorant and incompetent of the persons exercising the functions of an apothecary without a qualification? That may be true; but we have no means of knowing, in the first instance, what the qualifications are, of such individuals. Informations are sent up to us by other professional gentlemen in the neighbourhood, who represent the hardship of a man, of perhaps an active and intelligent mind in other respects, running away with the business that formerly belonged to them; and therefore calling upon the Society to protect them under those circumstances. The Society have no alternative, but of proceeding at once against a man, where the clearest evidence exists of his being an irregular practitioner.—But, considering that the object of the act is to protect the public against the *wholly* ignorant, and how great the powers are, which the act confers upon the Society, was not great discretion in the exercise of those powers required, so as to direct them solely against those utterly incompetent persons, from whom danger to the public was to be apprehended? I do not mean to dispute what this gentleman has stated with regard to his education. But a man, no matter what his education may have been,

for the sake of getting a livelihood, will often descend to such base means, as to render him obnoxious to his professional brethren in the neighbourhood, and in that view men are very frequently pointed out to us. For example, in a recent instance, an individual takes a parish, for that is a great ground of competition; the parishes are put up to the lowest bidder; and I have been told, since I came into this room, that an individual so circumstanced, has taken a parish for six pounds a year, including all the operations of surgery and medical attendance that may be required, and it is wholly impossible that such attendance can be what it ought to be, at a price so absurdly low as that mentioned.—By taking a parish, you mean giving medical attendance, advice, and assistance, and medicine to the poor of that parish? Yes; and performing all the surgical operations. A man who will degrade himself so far as to undertake duties of that kind, at so insignificant price, and not being a qualified man, is surely a fair object for the company's notice.—The preamble to the statute does not appear to consider the takers of low parish contracts, but the wholly ignorant, as the persons who ought to be guarded against. Do you not consider, therefore, that it is the latter, rather than the first, who are the fit objects for prosecution? I do certainly, and I venture to say, that every discretion has been exercised, with regard to that.—Do you mean to say, that in every case of information against an unqualified person for practising as an apothecary, before a prosecution is decided on, inquiry is made by your Society, what has been his medical education; and that if he appears to be a man of respectable medical attainments, your Society, in that case, forbears to prosecute? That has been our rule to a certain extent.—Informations in the country, you say, are principally given by one practitioner against another. When rivalry must often be the motive that leads to such informations, is not the man who has most success in practice, that is most subject to be informed against? Whenever an information is brought before the Committee of our Society, our clerk is directed to write to some agent, living in the neighbourhood of the individual informed against; this agent is directed to collect information concerning the qualifications of the party accused, and evidence in the event of his being prosecuted; and it is upon the report of such agents, that we determine whether we shall proceed or not.

"Your inquiry seems to be directed to ascertaining rather the truth of the information, than the medical attainments of the individual informed against? I think sometimes it may be so.—Do you, or do you not, seek for evidence of this character, before you determine whether to prosecute or not; namely, whether the education of the party informed against, has been of a character to render him competent to the exercise of the functions as an apothecary, without endangering the health and lives of the community? We take no other means of making this inquiry, than the one already mentioned, by applying through our clerk to some agent in the neighbourhood of the residence of this individual.—Is not informa-

tion respecting the medical education of the party likely to come with most accuracy from himself; and upon his supplying such information, would not be easy for you by inquiry to ascertain whether the information was correct; and if it proved to be correct, then to take it into consideration, whether his education was such as to render him fit to practise as an apothecary; and if so to forbear prosecuting him. Would not such a course be most consonant to the preamble to the act which describes entire ignorance, and utter incompeteney, as the evils intended to be provided against? Yes—admitting that the power with which the society is invested, was discretionary, it would certainly be their duty to look to these points; but as it is not so, I think they have no alternative, upon proper information and evidence of the illegality of such practitioners, but to proceed against them for the sake of those who are already qualified."

Mr Nussey is then requested to point out the words of the statute which render it imperative upon the society to prosecute upon information being given them, and after some preliminary parrying, at last fixes on the 14th clause. Now we have this clause before us at this moment, and we defy any human being, however ingenious, to construe it in such a manner, as to render it *imperative* on the society to prosecute when information is given them against any individual. We give it *verbatim*.

"And to prevent any person or persons from practising as an apothecary, without being properly qualified as such, be it further enacted, that, from and after the 1st day of August 1815, it shall not be lawful for any person or persons, (except persons already in practice as such) to practise as an apothecary in any part of England or Wales, unless he or they shall have been examined by the said court of examiners, or the major part of them, and have received a certificate of his or their being duly qualified to practise as such, from the said court of examiners, or the major part of them as aforesaid, who are hereby authorized, and required to examine all person or persons applying to them, for the purpose of ascertaining the skill and abilities of such person or persons in the science and practice of medicine, and his or their qualification to practice as an apothecary as aforesaid: provided always, that no person shall be admitted to such examination until he shall have attained the full age of 22 years."

And this is the clause which renders it *imperative* on the society to prosecute an individual who may have had his qualifications both, in medicine and surgery, tested by men, whose names carry authority with them wherever medical science is known, who may be willing to submit to another examination conducted by his inferiors in knowledge, but who, because he has not served in a menial capacity for five years, is deemed to have an education so radically defective, that nothing but be-

ginning his studies over again can compensate for the evil. Mr Nussey's free interpretation of the above paragraph is at variance with that of other office-bearers of the society, who admit that there is no clause compelling the Apothecaries' Company to prosecute. From the extract from Mr Nussey's evidence which we have given above, we are forced to conclude, that the society acts upon no fixed principles in instituting prosecutions; that it encourages medical men to be spies and informers against each other; that private spleen is the motive which prompts in all prosecutions, affording a curious illustration of the standing and acquirements of the general practitioners, alluded to above by the master; and that successful practice infallibly brings down the vengeance of the society upon the head of the unexamined or unapprenticed offender. It would occupy too much time to point out all the inconsistencies and contradictions in that portion of Mr Nussey's evidence given above. Every one who will take the trouble to peruse it attentively, will have no difficulty in detecting them.

The following passage discloses at least one fixed principle in which the society acts in regard to prosecutions, and that is, to intimidate all it can, and when the offender is too strong to let him alone. Mr John Bacot had previously stated that the society were not bound to prosecute, and that they exercised considerable discretion in instituting prosecutions. The examination then proceeds.

" The committee have before them a letter, dated Apothecaries' Hall, 24th April 1832, signed by your late brother Edmund Bacot, clerk and solicitor to the society, addressed to a person who was a graduate in physic in one of the Scotch Universities, and was practising in the north of England. The letter contains the following passage: ' You are not infringing on the rights of the society of apothecaries, but are acting contrary to the provisions of an act of Parliament, passed for regulating the practice of apothecaries in England and Wales, of which act the society, on any complaint, is bound and compellable to enforce the observance. From this letter, and others to the same effect, it appears that your society was in the habit of representing to the parties, who were informed against for acting contrary to the provisions of the act of 1815, that the society had no discretion; but was compelled to prosecute? I know that it was my brother's opinion that the society might be compelled to prosecute, when urged to do so by persons laying an information. Upon what that opinion was founded, not being myself a member of the legal profession, I cannot say.—If it be so that they have no discretion, they have no more right to exercise forbearance in one class of cases, when the act has been contravened them in another? Certainly not, but then discretion is limited by their power; and unfortunately, they cannot prosecute

every body. But it appears, that in the case of Army and Navy Surgeons, they have exercised a discretion in not prosecuting, although they were aware that it was an infringement of an Act of Parliament. At the time when they determined to exercise that forbearance, I was not a member of the court of examiners; but I have a distinct recollection from looking at the minute-book, that such suspension of the law was in consequence of a correspondence that took place between the Army and Navy medical boards, the Government and the society of Apothecaries.—A letter from the Secretary at War, and from the army and navy medical boards, requesting the society to suspend the law in favour of army and navy surgeons, followed by compliance on the part of your society, shows plainly that you did consider yourselves at liberty to forbear prosecuting, if you thought proper, and not as wholly without the power of exercising any discretion? That is true, provided they believed contrary to the opinion that was given, that those who were appointed surgeons of the army and navy prior to 1st August 1815, were not practising as apothecaries prior to 1815.—The law has been suspended in favour of all army and navy surgeons, whether appointed before or after the 1st of August 1815. If they who were appointed army or navy surgeons, prior to August 1815, were properly considered as apothecaries in practice prior to that date, those who have been appointed army or navy surgeons since 1st August 1815, must be considered as apothecaries in practice subsequent to that date, and in their favour the law has been suspended? Legally speaking, that may be the case; but we know very well that they every one of them have undergone a regular medical education, independently of the great experience they have subsequently acquired."

According to your last answer, regular medical education, and great subsequent experience entitle a party to the suspension of the law in his favour? If that education has been tested by due examination I certainly do think so.—Examination before whom? In the case of the army and navy surgeons, not before yourselves. Why then before yourselves, in the case of graduates and licentiates from the Universities and Colleges in Scotland? From our own experience we may not think, perhaps, that such medical education and examination in Scotland are so good as may be expected.—At any rate, in your previous answer, you have admitted the principle that where the party practising, though contrary to the directions of the act, has received a competent medical education, then the society should exercise a discretion and forbear to prosecute? Certainly, there ought to be, and I believe there generally has been, a discretion of that kind exercised.".

It is quite unnecessary to offer any comment on the above evidence, and we hasten to close this section of our examination, by presenting our readers with another specimen of inconsistency on the same subject. The witness was Henry Field, Esq. the Treasurer of the society.

"Have the informations upon which the prosecutions of your

society have generally been founded, proceeded in most cases from rival practitioners residing in the same place as the parties informed against? Undoubtedly.—Have not the prosecutions instituted upon such informations, sometimes been directed against persons who, though not possessing the qualification of apprenticeship required by the act of 1815, yet were gentlemen who had received a good medical education? I do not think there can have been many of that description; in such cases, why they have not been examined, must have been that they could not prove their apprenticeship.—Have there not been many individuals prosecuted, who have gone through all the courses of lectures, and in many cases the hospital practice, required for obtaining degrees or diplomas in the Scotch schools? There may have been a few, but I apprehend very few.—Is it not unfortunate that the prosecutions directed by the company should have fallen upon well-educated men, rather than upon those who, amongst the whole number of practitioners, were the least qualified from their education to practise? I cannot think that that has been the case.—Do you mean to say that, where gentlemen have passed through all the courses of lectures, and the hospital practice required for obtaining degrees or diplomas in the Scotch schools, that these were the individuals who were most ignorant and the least competent to exercise the functions of apothecaries; and therefore the most likely to endanger the health and lives of the community? The prosecutions have been principally against the very ignorant, if not entirely.—According to your previous statement, it was not the want of education of the party that formed the grounds of his prosecution, but the activity displayed by some neighbouring practitioner in discovering that his rival had never served as an apprentice, and in informing against him? I apprehend very rarely indeed; if he was a well-educated man he was qualified to be examined.—Of what use in court would his good education be, if he had not served an apprenticeship? Of course that made the difficulty.—Then supposing a person to have been well-educated, but not to have served the requisite apprenticeship; if such a person were informed against, and your society were made cognizant of those facts, have they been wont to forbear instituting a persecution? I am perfectly sure they would have been unwilling to prosecute. I will not say that they never did, but it must have been a rare occurrence, because they have acted with great lenity, particularly with respect to apprenticeships.—Ought they not to select for prosecution the most ignorant? They generally have done so.—Might not several instances be produced, where the parties have really received a good medical education? I apprehend very few indeed * * Has your society a right to exercise its discretion, whether to prosecute or not; or is it compulsory upon them to do so, whenever they receive information? Not compulsory, absolutely; but they have often been abused in such a manner for not prosecuting that they could not well avoid it."

The expense of these prosecutions is enormous, and the

amount of penalties recovered exceedingly trifling. The expences incurred by the society, in actions and indictments against persons for offences under the act of 1815, to 17th March 1834, was L. 6,771, 5s. 8d., the penalties recovered L. 170, and the costs recovered L. 763, 9s. leaving the society a loser by its prosecutions of the sum of L. 5837, 16s. 8d.

It is a remarkable fact, that no quacks have been prosecuted, as far as we can ascertain. The witnesses in general assert, that it is the most ignorant who are selected for prosecution; but the searching examination of the chairman of the committee soon brings them to admit, that successful practice is most frequently the test by which they are guided, in visiting offenders with the penalties of the act.

From what has already been placed before our readers, as well as from many other facts which our limits compel us to omit, we conceive that we are justified in asserting, that the conduct of the society of Apothecaries has been any thing but calculated to put down the ignorant and unprincipled intruders on the profession, or to secure the existence of honourable and liberal feelings among the general practitioners; that the powers with which the legislature entrusted them have been used or rather abused for the gratification of pitiful envy and malice; and that, upon the whole, their actions have been in direct opposition to the spirit both of their charter and the act which bestowed upon them privileges so extensive. They have made no endeavour to prevent those licentiates whom they admit to be incompetent, from acting as surgeons and accoucheurs; but when a well-educated surgeon, not honoured with their license, or a gentleman who is both a physician and surgeon, whom they will not admit to examination, because he has not served five years in a menial capacity, and in whose case they refuse exercising the dispensing power, which they either possess or have usurped in other cases,—if any one so situated, be his qualifications what they may, dare to prescribe and compound medicine for a patient labouring under some internal disease, they assume an appearance of the most virtuous indignation, talk with due horror of the dangers attending the careless compounding of medicine, and harass him with all the pains and penalties placed at their disposal.

3. *Education of Candidates.*—The period required to be devoted to their professional education by candidates for a license from the Apothecaries' Company is five years, but at the time when the evidence before us was given, only two of these were required to be devoted to attendance on lectures and hospitals. It was necessary, however, that the candidate should be apprenticed for five years to a qualified apothecary in Eng-

land or Wales, or to a surgeon acting as such in Scotland and Ireland. The necessity of a five years apprenticeship, though long boldly defended, is now virtually given up, although a struggle is still made to retain it in certain circumstances. Upon this subject we shall have some remarks to make under another head.

Within the space of two years, the student might attend lectures on chemistry, materia medica and therapeutics, anatomy and physiology, anatomical demonstrations, principles and practice of medicine, botany, midwifery, forensic medicine, and clinical medicine, besides twelve months practice of an hospital. This is the education which is stated to be so superior to that enjoined by the northern universities and colleges, and which has such an effect upon the pupil, as to imbue him with more scientific learning and practical knowledge, than in a less congenial clime he could obtain by the study of four years. The society has no power to examine candidates for their license, regarding their knowledge of midwifery and surgery; yet they render two courses of lectures on the former imperative upon the student, while he may remain utterly ignorant, if he should so choose, of the latter. Still the *curriculum* of the worshipful Company was supposed by the leading members to be far superior to that of the Edinburgh College of Surgeons; at least till the cross-examination of Mr Warburton, the chairman of the committee, communicated some little information on the subject, they seemed to have settled down in the quiet, satisfactory, and comfortable opinion that their northern brethren, unaccustomed to the pure and invigorating atmosphere of the capital, could not possibly be their equals in planning a course of education. There is something absolutely ludicrous in the following extracts from the evidence of John Nussey, Esq. the chairman, and John Ridout, Esq. one of the examiners. The pitiful attempts made to mix up the course of study required by the Royal College of Surgeons, with that required by the Society of Apothecaries, the total ignorance displayed of the qualifications of those whom they affect to despise, and the mock heroic indignation exhibited, scarcely require comment from us.

"Your society, it appears, were willing to admit that every person who had obtained the degree of M.D. from one of the aforesaid Universities, should be allowed to practise as an apothecary in England and Wales, without being required to undergo beforehand an examination before your Court of Examiners. Upon what principle was it that they declined to place fellows or licentiates of the Edinburgh College of Surgeons upon an equal footing with the graduates in medicine of the Scottish Universities? Upon the

principle, I presume, that the examination of a physician as to medical qualifications, in the Scottish Universities, would be quite equal to the examination that would be required in this country; but that a member of the Edinburgh College of Surgeons could not be supposed to have gone through any thing like the same examination which we should put him through in London."

We have no doubt that this will account for some of the rejections. We can easily conceive the *kind* of examination which such a candidate would *be put through.*

"Was that opinion founded upon an accurate examination of the course of study, and of examination, required of the licentiates of that College, as compared with the course of study and examination which you require of the candidates for your licence? I believe it was founded upon the published *curricula* of the respective colleges or corporations.—Do you mean that your curriculum is equal in extent to that of the College of Surgeons at Edinburgh? At this moment I am hardly competent to answer that question, as I do not know the distinction between the two; but I believe that our opinion was principally founded upon what we considered might have been the examination of a surgeon; that the examination of the Edinburgh College of Surgeons, being strictly for a surgeon, he could not be supposed to be qualified to practise medicine."

Why not? Is there any moral or physical incapacity in a surgeon to practise physic? But waiving this, would it not have been more becoming in a public body, authorized to legislate in respect to medical education, to have made some inquiries into both the course of study required of candidates for the Edinburgh diploma, and into the nature of the examination to which they were subjected? *A priori* reasoning on such subjects does not always lead to the truth, more especially when had recourse to by men warped with prejudice, and possessed of limited information and powers of reasoning.

"Your are aware that by their charter, and according to their practice for a series of years, their college is a college of pharmacy as well as of surgery? Yes, I am aware that the general practitioners of Scotland are members of the College of Surgeons.—And that the college, within the bounds of their jurisdiction are, in fact, authorized to supervise practitioners in pharmacy? Yes.—In the year 1833 your society admitted the principle of allowing the graduates in physic of the Scottish Universities to act as practitioners in England and Wales, without being previously examined by you. Are you aware that at that time the curriculum of the Edinburgh College of Surgeons was more extensive than that of the University of Edinburgh; that, accordingly, you conceded the point to those of less education, and refused it to those of greater? No: I was not aware of it.—Was this determination of your society founded

upon an accurate comparison of the respective curricula of study, and on an inquiry as to the strictness of the examinations of the two bodies in question? I apprehend that the determination turned more upon the fact of the individual, in the one case, having a diploma in physic, and in the other, a diploma in surgery only.—Surgery being a mere name, and in reality the Edinburgh College of Surgeons uniting in itself the functions which belong in London to the Apothecaries' Society, and to the College of Surgeons together? Yes.—Upon what principle, then, is it that your society proposes to admit unexamined, the doctors of physic of the Scottish Universities, and to require the fellows and licentiates of the Edinburgh College of Surgeons to submit to examination? The objection was not confined entirely I believe, to the College of Surgeons of Edinburgh, but applied to the surgeons of Scotland generally, for there is a great inequality, I believe, in the mode of educating surgeons in Scotland."

We are aware of only three bodies in Scotland which have the right of licensing surgeons,—the Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the University of Glasgow. Of late the University of St Andrews have assumed the power of granting the degree of Doctor in Surgery; but the qualifications which they require are the same as those demanded by the Royal College of Surgeons of Edinburgh, with the exception of clinical medicine, which is not deemed necessary. We conclude then that Mr Nussey's objection to Scottish surgeons is directed altogether against those licensed at Glasgow, as from his ignorance of medical education in Scotland he could hardly be supposed to know anything of the St Andrews chirurgical degree.

"Suppose the inequality to be great, why was a college that surpassed in the extent of its curriculum, and equalled in the strictness of its examinations, the University of Edinburgh, to be treated as undeserving of having its members admitted to practise, granting even that there was some other college or faculty in Scotland whose *curriculum* and examinations were of a very inferior description? Would it not have been more reasonable to admit the members of the deserving college, and to exclude the undeserving? That I admit; but I fancy that it was upon the same principle that the Surgeons of London, as well as those of Dublin, were prepared to accede to our proposal—namely, that all surgeons, *qua* surgeons, should come before us to be examined, not in what belongs to surgery, but relating to their attainments in medicine. For example, the examination in medicine is limited to certain subjects, viz. to the theory and practice of physic, pharmaceutical chemistry, materia medica, and botany."

After the display of utter ignorance of the medical education

given at Edinburgh, made by Mr Nussey, we are not surprised to find that he is not aware that the College of Surgeons of this city, examine not only on anatomy and surgery, but on chemistry, materia medica, pharmacy, as well as physiology, practice of physic, and midwifery in the widest sense of the word, although their diploma refers only to anatomy, surgery, and pharmacy. But we conceive that he ought, for the proper fulfilment of the duties of his situation, to have made himself master of the subject, more especially, as the simple inspection of one of the diplomas, would have shown him that pharmacy at least formed part of the examination. To proceed, however, with the evidence.

"Then suppose you compare the *curriculum* of your Society with that of the Edinburgh College of Surgeons. First as to the knowledge required before the commencement of the medical studies; excepting always the youths who are apprenticed to members of your incorporation; are students, on being registered at your hall, required to show that they possess certain attainments? Every young man is examined as to his preliminary education, that examination taking place previous to his general examination for his certificate.—But that is at the very time that he comes to be examined for his certificate; does any examination respecting his previous education take place at the time of his being registered at your hall? It does not.—What are the attainments, besides a knowledge of medicine and the sciences allied to medicine, that you require your candidates to possess. One examination, I believe, in Celsus and Gregory's Conspectus.—With a view to test their knowledge of Latin? Yes.—The candidates for the diploma of the Edinburgh College of Surgeons are required, it is stated, to know Latin and the elements of mathematics and of natural philosophy; is not that more than you require in the way of preliminary information? It is, certainly.—And is not that information of a description which it is very important for a medical man to possess? Certainly.—Now respecting the duration of the period of medical study, exclusive of the apprenticeship, does not your society, require two years attendance on lectures and on hospital practice? Yes.—I do not profess to be accurately acquainted with either one *curriculum* or the other; but I will admit at once, if it will advance this inquiry, that the education prescribed by the College of Surgeons at Edinburgh, may be superior to that laid down by the Society of Apothecaries. Two years attendance on lectures and on hospital practice is required by your society. The Edinburgh College of Surgeons requires attendance on lectures and on hospital practice, either during four winters, or during three winter and three summer sessions. Your society requires two courses of anatomy, averaging about three and a-half months each; the Edinburgh College of Surgeons require two courses of anatomy, lasting six months each. In these respects the Edinburgh College requires considerably more

than your society? It appears so.—In practical anatomy, your society requires two courses of three and a half months each; the Edinburgh College requires a course of six months. In that one respect they are on a par? Yes.—In chemistry, your society requires two courses of 45 lectures each, *i. e.* 90 lectures, and the Edinburgh College requires two six months courses equal to about 120 lectures; here the Edinburgh College is rather more than equal to your society?—Yes."

There is an error in the mode in which the last statement is put. The College of Surgeons of Edinburgh requires two six months courses, each of six months, or about 120 lectures, consequently the Edinburgh student attends about 240 lectures, while the candidate for the apothecaries licence requires only 90.

"In practical chemistry, the curriculum of your society exhibits a blank, the Edinburgh College prescribes a three months course. In that they excel you altogether. In materia medica and pharmacy you require two courses of forty-five lectures each, *i. e.* ninety lectures. The Edinburgh College requires one six months course, or about 120 lectures; here you are nearly on a level. There are two courses of physiology conjoined with anatomy required by your society; there is one six months course of physiology required by the Edinburgh College? Yes."

From these admissions of the chairman, which he could not avoid making, it was beginning to appear that even in their favourite sciences of chemistry and pharmacy, the society of apothecaries had not displayed such zeal as the Edinburgh College of Surgeons, whose licentiates they had been accustomed to undervalue so much. The chairman was too honest for the incorporation. He was not special pleading their case, which was beginning to assume rather an unfavourable aspect, when Mr Bacot, the chairman of the examiners, interposed with the view of preventing the crisis.

"*Mr Bacot.* I beg leave to make this observation; that as the College of Surgeons of London require four courses of anatomy, the two which we require are only one half of the number of courses which the general practitioners actually attend. That is the reason why we do not require so many courses as the College of Surgeons of Edinburgh.—Respecting clinical medicine; your society requires fifteen months hospital attendance where clinical lectures are not given, and twelve months hospital attendance where they are given; the Edinburgh College previously requires six months attendance on clinical lectures? I should state that clinical lectures have only recently been given in the London schools; it is quite a new thing.—In midwifery you require attendance on two courses, of what duration each? Usually about three months each.—The Edinburgh College directs attendance on one three months course; so that in midwifery it appears you surpass the Edinburgh College. In medical jurisprudence, you prescribe one course, of what length? Usually about three months.—The Edinburgh College of

Surgeons require one three months course? In that you are both on a par? Yes.—In botany you require one course; the Edinburgh College does not require any. Respecting hospital attendance, the Edinburgh College prescribes, exclusive of the one six months course of clinical lectures, eighteen months of hospital attendance? Our twelve or fifteen months hospital practice is purely medical, and the College of Surgeons require twelve months more, making twenty-four months altogether."

The attempt here made to amalgamate the society of apothecaries with the College of Surgeons of London, to make up the deficiency in the course prescribed by the former by that enjoined by the latter, and indirectly to make it appear that all the licentiates of the company had passed the College, appears to have been completely detected by the Committee; for the examination of Mr Bacot is discontinued, and that of Mr Nussey resumed.

Both Mr Nussey and Mr Bacot having failed to make it appear that the course of education prescribed by the Edinburgh College was inferior to that prescribed by the society of Apothecaries, new reasons are assigned for preventing the licentiates of Edinburgh from practising in England, unless after undergoing an examination at Apothecaries' Hall. These reasons are in themselves such curiosities that we cannot refrain from laying them before our readers.

(To Mr Nussey) In page 4, clause B. of the amended bill of last session, it is provided that surgeons, in addition to their diploma should produce a certificate of having attended at least twelve months at the laboratory of a surgeon, or of an apothecary, or of a public hospital or dispensary, for the purpose of learning pharmacy. In what respects is the curriculum of the Edinburgh College of Surgeons, with this addition regarding pharmacy, inferior as a whole to the *curriculum* prescribed by your society, or by the University of Edinburgh? I may state, that the Apothecaries society do not at all dispute the efficiency of the course of education prescribed by the College of Surgeons of Edinburgh; their object was, to prevent any public body out of this kingdom from having an authority in it equal to their own.—Prepared then as you were to make this concession to University graduates, why not admit to the same privileges the members of every medical or surgical college or Faculty, who by the curriculum which they had completed, and by the examination which they had undergone, might be presumed to be of equal attainment with those graduates; and, in respect of pharmacy, perhaps superior? One reason why we relieved the doctors in medicine from coming before us was, that they contended, and, perhaps, not unjustly, that they had taken a much higher degree than we could confer upon them, and that if entitled to practise as physicians, they were surely entitled to act as general practitioners.—Should not the substance rather than the

name be looked at in these cases? There may be great truth in that; but at the same time, the physicians coming from Scotland are by no means so numerous as those who have been educated for surgeons and apothecaries; and the object the society had in view, in requiring provision to be made for those individuals coming before it, was, that the society might maintain its own superiority in its own country, and that there might not be a variety of authorities having corresponding powers with itself. The Scotch and Irish are at perfect liberty to make any laws and regulations to suit themselves, but they are not to make laws and regulations to control us.—Was there any endeavour in the bill to give to the Edinburgh and Dublin College of Surgeons, or to the Universities of Edinburgh and Dublin, any jurisdiction or control over the general practitioners in England and Wales? Was not the previously existing jurisdiction of your society, of the Colleges of Physicians and Surgeons in London, and of the English Universities, left by the bill in *statu quo*? It is, so as far as regards the jurisdiction. The jurisdiction of the Scottish and Irish bodies did not extend to this country, but any power conferred upon them of *furnishing* medical practitioners to this country, would materially interfere with the jurisdiction that we possess.—What jurisdiction would it interfere with? The power conferred upon us by act of Parliament of examining all practitioners in this country.—It would interfere with your examining a certain number of individuals claiming a license? The presumption is, that if this power were granted to Scotland, that country might become in time the great thoroughfare for furnishing England with practitioners.—That was the only part of the society's jurisdiction with which it was proposed to interfere; namely, your examining a certain number of the persons claiming a license? Yes.—Did it not leave untouched every other point of the jurisdiction you exercise? Yes, but the point in which it interfered was a very material one.—Supposing it, for argument's sake, to be true, that the licentiates of the Edinburgh and Dublin College of Surgeons were well educated, and have been as strictly examined as your licentiates, what reason founded on general principles, can you give why they should not be allowed to practise as general practitioners in England and Wales? I can offer no other reasons, I have already stated that upon the understanding of a uniform system of education and something like an equality of examination being established (which I trust may be established through the means of this committee) the Apothecaries' Society are fully prepared to admit of the most complete reciprocity."

The evidence of Mr Ridout is to the same effect. He takes it for granted that the general practitioner in England passes an examination at Surgeons' Hall, and upon this he institutes a comparison between them and the Edinburgh licentiates. From the tenor of the diploma he supposes that the latter are not examined in medicine. He defines *medicine* to

be human pathology. He admits the course of study enjoined by the Edinburgh College of Surgeons to be a very comprehensive and a very judicious one, and such as would fit and justly entitle a man to practise, if steadily attended to and tested by comprehensive and rigid examinations. He then gives evidence as follows:—

"May it not be fairly stated, that the curriculum of the Edinburgh College of Surgeons is equivalent, on the whole, to the two curricula jointly, of your Society, and of the London College of Surgeons? The difference is in the length of time required to be devoted to the acquisition of medical knowledge.—In this time, you include that of apprenticeship? Certainly.—In what time can the joint curricula of these two London corporations be completed? I suppose in a little more than two years.—The Edinburgh College of Surgeons, requiring its curriculum to be completed, either in four winter, or in three winter and three summer sessions, at least three years must be passed by the student in study, strictly professional? Unquestionably; but I have stated before, and I wish to state again as strongly as possible, that I think the period devoted to apprenticeship is very important.—Omitting that consideration for the present, is not the minimum of time required by the Edinburgh College to be passed in attending lectures and hospital practice greater than the minimum of time in which the joint curricula of your Society, and the London College of Surgeons can be completed? Unquestionably that is the case.—In the amended bill of last session, it was proposed that the student should attend one year to the practice of pharmacy at some proper school for the purpose; would not that have added one year to the whole period of study? I did not understand that it added one year; if it were to be in addition, it would have materially altered my opinion respecting it.—Then the only particular in which you conceive that the joint curricula of your Society, and of the London College of Surgeons surpass the curriculum of the Edinburgh College, is that three years of the five required, are passed by the English student as an apprentice in his master's shop? No; his studies would, or might be diffused over the five years, instead of the more limited period.—Do you mean to say, that, in point of fact, it is usual for the English student to commence attending lectures and hospital practice at the beginning of his apprenticeship, and to spread them over the whole period of five years? Is it not rather the usual practice for him to pass the three first years in the master's house, and the two last only in a regular course of medical education? On reference to the papers laid before us by candidates, it is found, as I am informed by the secretary to our court of examiners, that, upon the average, three years and seven months are passed by apprentices, prior to their attending upon lectures; and that they do not come up for examination till twenty-three years and two months of age. The attendance upon lectures by the student begins now at an earlier age than heretofore. Generally, apprentices to practitioners in

London, and in the provincial towns, the seats of a school of medicine attend lectures on chemistry at the end of the first year, and lectures on anatomy in the course of the second year's apprenticeship; so that they are beginning their course of public study during their second year's apprenticeship.—It is stated in the memorial addressed by your Society to Lord Melbourne, in answer to a memorial of the Edinburgh College of Surgeons, that the number of apprentices in towns and cities, the seats of a medical school was 1,300, and that the number of apprentices in places where there was no medical school, was about 2,000. Therefore your last remark would apply to 1,300 only out of 3,000? Yes; but there is this to be borne in recollection, that students frequently attend one season at a medical school, and then return to the medical practitioner, not coming up again to complete their education till a more distant time.—In the greatest number of cases, are not the three first years and a half of apprenticeship passed without attendance upon lectures and hospital practice? and is not the period of such attendance deferred till near the close of the term of apprenticeship? It appears from the same paper that youths, upon the average, are apprenticed at sixteen years of age, and do not come up for examination till twenty-three years and two months of age. Supposing this to be correct, above seven years, on the average, are devoted to the acquisition of professional knowledge by medical students, either as apprentices or as students at the medical schools. More than two years of this period are devoted to attending the lectures and hospitals; and although students are only required by us to attend two years, they in general actually attend for a longer period. This same paper states, that the apprentices commence their studies at three years and seven months after the commencement of their apprenticeship, and that would be at about the age of twenty. If they come up for examination at about the age of twenty-three years and two months, that allows three years and seven months for the public course of study, if they choose to devote so much time to it; and in the experience of the last year, we find that students attend many months longer than is imperatively required of them.—For a young man of the age of sixteen to pass in apprenticeship to a practitioner the next three years and a half of his life, is that the most advantageous mode for him to occupy his time with a view to his ultimate proficiency in his profession? Taking the subject up comprehensively, as I have been bound to do, I think it is so decidedly; because what would be the alternative? A young man at the age of sixteen, seventeen, or eighteen, would, under other circumstances, be sent to a public medical school, to attend lectures and hospital practice; and would be exposed there to various temptations, and run probably into but too many errors, unchecked by any authorized control. On the other hand, in addition to the moral control which the student, as apprentice, would be subject to, he would enjoy numberless opportunities of gaining progressively a practical knowledge of his professional duties. My opinion is, that the advanced state of me-

dical practice in this country, as compared with the practice on the continent, has been mainly owing to the apprenticeship system. The act of 1815 requires that a medical student should produce on his examination, a testimonial of 'good moral conduct.' The master of an apprentice is an individual capable of bearing testimony upon this subject, or of withholding it if he should see fit. The knowledge of this power beneficially influences students. Then a medical practitioner, surely, is better able than an unprofessional man to direct the studies of a medical student, and to assist him in them. There are [is] a great number of medical and surgical cases occurring daily at his surgery. Medical subjects also form the topic of conversation and discussion; and the student is called upon to see patients, to make inquiries, and to report the result of them to his teacher. In all these various ways, a very beneficial result follows. Apprenticeship is open to abuse, I admit; but the question is, whether the abuse outweighs the use or not.—You are aware that, at the Edinburgh College of Surgeons, a preliminary knowledge of Latin, of the elements of Mathematics, and of Natural Philosophy, is required? They are called for, but I do not know whether they are tested or not. We require these acquirements likewise, but we are not authorized to test them.—Do you require more than a mere knowledge of Latin? In our preface, we especially point out the necessity of much more information than that.—You recommend it; but do you require it? We recommend it; but I do not know whether the Edinburgh College of Surgeons institutes any examination to ascertain whether the student possesses the information in question. We find that examination is decidedly necessary to test attainments.—You recommend that the student shall have acquired such knowledge, but do you not test it by examination? We actually examine them in Latin; and we urge them as strongly as we can to acquire also a knowledge of Greek, of Mathematics, and of the French and German languages; we have no authority to examine upon those subjects."

Now we must inform Mr Ridout, that the knowledge of Latin possessed by candidates for the Edinburgh diploma is always tested; that they are required to write extemporaneous prescriptions at full length, expressing the quantities in words; and that they are occasionally examined on subjects connected with natural philosophy. We would remark, too, that the evidence goes to show, not the excellence of the course of education prescribed by the society of Apothecaries, but the reverse, inasmuch as it would appear that the students themselves are not satisfied with its sufficiency, but extend it in many points of which even their limited information leads them to see the necessity of an accurate knowledge. The special pleading and inconclusive reasoning respecting apprenticeships we shall have an opportunity of discussing hereafter.

From all that we have now seen, we are forced to the con-

clusion, that the education prescribed by other medical incorporations is superior to that enjoined by the Society of Apothecaries; that in framing their regulations, they trusted to their own limited information, instead of acting upon a comprehensive knowledge of what was done by others; and that their views of medical education are narrow, confused, and prejudicial to the interests both of the public and of the profession.

We have devoted so much space already to the consideration of three of the branches of our first division, that we must discuss the remaining two very briefly.

4. *Examiners and Examinations.*—The examiners must be members of the society of ten years standing, and not engaged in teaching, at least if they are, their tickets are not received. Their number is fixed by the act to be twelve. The examinations are conducted in private, the examiners being present, who divide themselves "into four sections, three sitting at a table. In consequence, four students are admitted to examination at a time, one candidate to each table, with its three examiners. One examiner conducts the examination in chief, with occasional assistance from the gentlemen sitting at the same table. If a candidate acquits himself well, no change takes place; but if a candidate answers several questions unsatisfactorily, then, before he is rejected, a majority of the court hear his examination, and satisfy themselves, from personal observation, as to his attainments."

If a candidate is rejected, on appearing again, he passes through the same examination as at first. This is done, because it has been found that "candidates so circumstanced have paid too exclusive attention to the particular subject on which they had failed before; or the same idleness, or want of capacity evinced on the former examination, has made them fail on subjects in which, at their former examination, they succeeded." The examination in Latin takes place at the commencement, and if the student is unable to read the prescriptions placed before him, he is at once rejected. These prescriptions are selected from those sent to the houses of the members of the court, generally such as are tolerably well written; if there are any which are not so, every assistance is given to the candidate in reading any word which should not be very legible. The candidate is required to read and translate the prescription, giving the terminations of the Latin words, and translating them into English. Philosophical and pharmaceutical chemistry, materia medica, botany, the anatomy of the viscera, and practice of physic, form the other subjects of examination. The proficiency of the candidate in materia medica and pharmacy is tested by two trays being placed before him, the one containing drugs, the other

salts. "He is required to recognize the external character of the drugs and salts, and to explain the natural history of some, the chemical constitution of others, and the therapeutic application of all." The examination is thus so far demonstrative. The examination on midwifery is stated by Mr Ridout to be "substantially good, though not so well established as is desirable; all that may be called operative midwifery is excluded;" but they go so near to it as to insure, on the part of the student, attendance upon lectures on midwifery, and a knowledge of the subject taught by the lecturer. The average duration of the examination of each student is an hour and three quarters, at any rate above an hour and a half.

In 1825 the per centage of rejections suddenly increased from eight to ten, and went on increasing, till in 1830 it amounted to twenty-two. It then decreased, till in 1833 it was reduced to thirteen.

Mr Bacot explains the increase of the number of rejections during the last-mentioned years, by stating that, "until the year 1826, the examiners rejected about the same proportion, in consequence of the education and the subjects on which the students were questioned not having been extended." "Since that time the education has been greatly improved, the examinations have been more strict and extended."

It appears that in three years, 1831-2-3, of forty-two candidates holding the diploma of the College of Surgeons of Edinburgh, ten were rejected; and of eighty-five educated at the Edinburgh school, twenty-six were remitted to their studies. In 1831, nine out of twenty-six were rejected; in 1832, thirteen out of thirty-five; and 1833, thirty-five appeared, and all passed.

It appears to us somewhat extraordinary that the Edinburgh School has furnished so many of the rejected during two years, and that on a sudden, the next year, all the candidates from the same school should have passed. We are far from wishing to insinuate that there was any intentional unfairness in the examiners; but we know well, that with the prejudices which many of them have expressed in regard to the Edinburgh School and Edinburgh College of Surgeons, it is extremely probable that the candidates who had received their education in this city would be looked upon as suspected individuals, and subjected to a more severe, if not a more harassing, examination than those who had been instructed in more favoured seminaries. It cannot be supposed for one moment that those who had received the most extensive education should be inferior to others whose attention had been less directed to their profession, in the proportion of 2 to 1. We shall return to this

subject again. In the meantime, we hasten to the fifth division of our first inquiry.

5. *Supply of Drugs.*—Both by their charter and the act the Society of Apothecaries were constituted a trading company; and this privilege seems to have been conferred upon them, in order that a supply of pure drugs and preparations might be secured for the public. Much has been spoken and written regarding the superior management of the pharmaceutical department at the Hall; and two chemists are employed to superintend the processes. It would appear, however, that not only do they supply themselves from British manufacturers with various substances of a bulky nature, but that they even decline preparing those articles which, from their cost and composition, are liable to be adulterated, and which it is of the highest consequence, both to the safety of the patient and the credit of the practitioner, to have in the purest form possible.

Mr Field, the treasurer, who describes his duty to be a general superintendence of the pharmaceutical department, states that the Apothecaries' Company does not prepare nitric, sulphuric, tartaric, and citric acids, which, it is well known, are not made by the manufacturer according to the processes of the Pharmacopœia, and are not in a state of perfect purity. The following quotation will show how far Mr Field is qualified to take a general superintendence of the drugs and preparations vended at the Hall. It is also another specimen of the inconsistency and contradiction displayed by all the witnesses of the Apothecaries' Company.

"Does your Society purchase any of the articles that it sells from the wholesale Druggists? From the wholesale druggists certainly.—Does your Society purchase of the chemical manufacturers those chemical articles only which are prepared wholesale by them as articles of general commerce: does it not purchase any preparations of a different description from the chemists? I believe not.—How does it provide itself with sulphate of quinine? It all comes from France; it is all manufactured in a wholesale way by the manufacturers of certain articles—How do you account for its being prepared all in France? They prepare it better and cheaper than we can here.—Is it the cheapness of alcohol in France that occasions the preparation of the salts of quinine in that country? That is one important cause: I have no doubt but the French are very clever in manufacturing, and they get a better produce from the same thing than we can do.—Is there not equal chemical knowledge on the part of many individuals in England? They have so large a practice in it, that they have a skill which moderate practitioners have not.—Is not sulphate of quinine subject to a considerable duty on import? About a penny an ounce, which is merely nominal.—What is the wholesale price of sulphate

of quinine? About six or seven shillings an ounce: I recollect it as high as thirty shillings.

"Robert Christison, Esq., M. D., Professor of Materia Medica in the University of Edinburgh, called in and examined.—Is alcohol used in France for preparing sulphate of quinine? I think not; because more than one process has been contrived by the French chemists for preparing it without alcohol.—The processes without alcohol are the cheapest? Yes; and I have reason to believe that some of the processes without alcohol are followed by manufacturing chemists in this country.—Can you give any reason why sulphate of quinine should not be manufactured with profit in this country? I am inclined to believe that a large portion of what is used in this country is made in Britain, though not made so cheaply as in France. There may be various reasons for that; among the rest, efficient workmen in that country are much cheaper, and a certain degree of chemical knowledge is far more common. I have examined samples from each country with great care, and have found samples manufactured in England equal to the finest sulphate of quinine I ever saw.—Have you met with any sulphate of quinine not of the requisite purity? Several times; I know a chemist in Edinburgh who prefers the British sulphate of quinine, because there is a greater certainty of having it pure; for though it is better prepared in France, it is more irregular."

Henry Field, Esq. further examined.—"How does it happen, that your Society, possessing a laboratory and complete establishment, such as would be required for manufacturing sulphate of quinine, is not able to manufacture it so cheap as they can purchase it? I believe it is owing to the quantity made in France being much greater than can profitably be made here. The English makers do not make it now so cheap as the French. The fact is, that our laboratory would not be equal to the manufacture of a thing of that kind; it requires a quantity of apparatus peculiar to itself, of a very expensive description.—Is not the process of manufacturing sulphate of quinine one of those refined processes which, especially your society, ought to carry on in their own laboratory; inasmuch as it is an article not manufactured to any extent by the wholesale chemical manufacturer, is very liable to adulteration, and is inefficacious, except in a state of purity? There are not more than two or three manufacturers in England, I believe, who prepare it.—Is not that an additional reason why your society should do so? We attempted it once, I believe, upon its first discovery; but the difficulties of making it are so great, that the manufacturers of it can do it much cheaper than we can.—Do you mean to say that there is not sufficient skill at your laboratory to prepare this substance with advantage? I am not speaking of skill exactly; but in France the quantity to be prepared is so large, that they can do it better and cheaper than we can. The article prepared in England is not very saleable; for it differs so much in appearance from the French, that the public in general is not satisfied with it.—What are the principal articles that are prepared at

your laboratory? It is almost impossible to state, there are so many; almost all galenicals, or compound medicines, syrups, and pills, and a great many chemicals.—Do you grind all the drugs yourselves? Yes.—Are your preparations better or worse than those which are sold by the most respectable chemists and druggists? They certainly are greatly better than what are sold by chemists and druggists in general; but there are a few persons in London who might be named, and who sell very excellent medicines, and I dare say as good as ours. We are governed by the pharmacopœia, and in galenicals consider ourselves obliged to make use of every ingredient therein mentioned."

Mr Field immediately after states, that the processes of the pharmacopœia are not followed in all cases, but that deviations are made whenever it is deemed necessary. Dr Christison, perhaps the first pharmaceutical chemist of the day, asserts that the French quinine cannot be depended on; but the Worshipful Company refuses to manufacture this substance, or even to vend the British; because, forsooth, the public would rather have it of the French shade of colour. Such are the guardians of medicine in England!

Some questions regarding processes in pharmaceutical chemistry put to Mr Field were very promptly answered by Mr Hennell, the operating chemist to the Apothecaries' Company. Was the superintendent unable to answer them himself—or was the operating chemist too anxious to show his knowledge? We know not; but the questions were what a first year's student of the Edinburgh school would have taken no credit to himself for answering.

Our limits are now exhausted, and we are reluctantly compelled to defer the remainder of our remarks till the appearance of the next Number of this Journal, when the suggestions offered to the Committee in regard to Medical Education, &c. and the charges and insinuations made against the Edinburgh school, shall form the subject of the continuation of the present article. In the meantime we may be permitted to remark, that, from what has been urged above, there cannot be a doubt that the Society of Apothecaries has failed to perform its duties, and has abused its privileges. It has either neglected to visit the shops of its members and licentiates, or made but a partial search. It has failed in putting down quackery, and exercised its power of prosecution to harass the successful practitioner. It has fostered a spirit of malice and envy among its licentiates, by encouraging them to become informers. The course of education has been meagre and inefficient; their examinations, notwithstanding the denial of the examiners, capricious, if not positively unfair; and in the supply of drugs the practitioner has had no advantage more than he would have had,

if no such company as that of the Apothecaries had ever existed. Why then should this Society longer exist invested with odious privileges. Enough has been proved by its members to justify the Legislature in reducing it from the rank of a public body to the humble one of a private trading company.

If we mistake not, the exclusive privilege of the incorporation is gone. The metropolitan university by its charter is invested with the power of examining in all departments of the science of medicine in the widest extent of the word, and it remains to be seen whether those receiving degrees from it can be prevented from acting as general practitioners in any part of England and Wales. Should they have this privilege, then it cannot with any shew of reason be refused to all schools and colleges like those of Edinburgh, which have shewn themselves both able and willing to educate effectually their pupils, and scrutinize strictly their qualifications.

ART. IV.—*On the Disease of the Hip Joint, with Plain and Coloured Plates.* By WILLIAM COULSON, Consulting Surgeon to the London Lying-in-Hospital. London, 1837, 4to. pp. 111.

IN this treatise, which consists of seven chapters, Mr Coulson treats *first*, of the anatomy and physiology of the hip-joint; *secondly*, of the cause of disease in the joint; *thirdly*, of the pathology of the hip joint; *fourthly*, of the morbid anatomy; *fifthly*, of the symptoms of the disease; *sixthly*, of the diseases with which it is liable to be confounded; and, *lastly*, of the treatment best adapted for its favourable termination.

In the second chapter, on the cause of disease of the hip-joint, Mr Coulson begins to unfold his peculiar views, which consist in regarding it as dependent on constitutional causes, and an effect and indication of a morbid state of the system at large.

His doctrine may, in short, be reduced to two propositions; the first, that it is a distemper primarily of the vital or nutritive functions; and that in the vital system the distemper consists in derangement, not of the circulation or absorption, but of the process of secretion.

To establish the truth of these two propositions, he adduces a number of facts and arguments, which seem well calculated to enforce the conclusions.

Perhaps the author does not explain himself so clearly as may be requisite, as to what he understands by the vital system as distinct from the circulatory, (Chapter xi. p. 10,) which most physiologists regard as a vital system; nor do we feel com-

petent to offer any commentary on a point on which perhaps we might make some mistake. But we subjoin the following passage, as containing a short summary of what he regards as the great efficient cause of disease of the coxo-femoral articulaton.

"Thus I have endeavoured to simplify the view of the causes of this disease,—country, age, sex, &c. for it is evident, on examination, that all of these operate by enfeebling the most important joints of the body, in persons in whom the vital, and especially the secreting system, is deranged. Accident or external injury does so directly; the damper climates of England and Holland are obviously favourable to the vital, and unfavourable to the locomotive system;—hence great bodies and small limbs. Childhood and womanhood are distinguished by an active vital and feeble locomotive system, &c. and if the locomotive system is enfeebled, it is not wonderful that its greatest joint should be so."

"Previous writers on this subject have ventured to suppose, that when this disease appears in scrofulous persons, it is at least a constitutional affection. I have endeavoured to show that it is always not a consequence, but a mere external symptom of constitutional disease." P. 20.

This doctrine is further confirmed in the third chapter, in which the author takes a view of the different notions entertained on the pathology of the disease, by Clossius, Albers, Rust, Palletta, Boyer, Sir B. Brodie, Mr Wickham, Mr Mayo, Mr Tyrrell, Mr Key, and M. Cruveilhier; and then adduces his own view, though not in a manner so distinct and clear as could be wished. So far as we understand this view, Mr Coulson thinks that the first local indications of the constitutional malady are evinced in the synovial membrane of the *acetabulum* and intra-acetabular folds, that of the round ligament and the ligament itself, all of which become red, vascular, and swelled, or, in short, inflamed.

In the fourth chapter the morbid changes in the different tissues of the joint are described with considerable accuracy.

In the fifth chapter is given an elaborate account of the progress of the external symptoms of the disease, with several ingenious observations on the causes of these symptoms at the different stages of the disease.

These symptoms the author distinguishes into three stages. The first is generally inflammatory, though not always attended by pain; the second is marked chiefly by the deformity of the limb, and the flattening of the nates; and the third is attended with shortening of the limb, and the formation of matter in abscesses and sinuses more or less extensive.

The last chapter contains a good and instructive view of the

treatment to be pursued in cases of diseased hip-joint, with the view of promoting their favourable termination. This the author distinguishes into three forms, adapted to the three stages of the disease. He also enforces with much judgment, as well as energy, the necessity of constitutional treatment, and above all treatment calculated to rectify the action of the alimentary canal, and to improve the secretion of the liver.

The principal defect in this treatise is the mode of arrangement, which appears not very natural or methodical. Thus the fifth chapter, on the symptoms and external or visible phenomena of the disease, would have been in a more natural position in the second place. Then, perhaps, the chapter on the morbid anatomy should have followed that on the symptoms; and the subject of pathology evidently follows that of morbid anatomy more naturally than by preceding it. After these chapters the subject of causes might have been more clearly discussed, than in its present position, namely, second in the list; and the chapter on diagnosis might have followed or come before that on causes. The reason of this arrangement must be obvious. It is impossible to speak of pathological views or doctrines without knowing something of the morbid anatomy; and certainly the simplest part of any disease is the history of its external symptoms. Notwithstanding these defects, however, the treatise is one of great merit, and should be received with indulgence.

The morbid anatomy of the disease is illustrated by six very beautiful and well done lithographic figures of preparations of various parts of the diseased articular textures, two of them coloured. These must be regarded as of very great value, and much interest to the pathological inquirer.

To conclude, this short treatise is extremely creditable to the diligence and genius of Mr Coulson, and must tend to establish his character as a zealous surgeon and pathologist.

ART. V.—*A Treatise on Insanity and other Disorders affecting the Mind.* By JAMES COWLES PRICHARD, M. D., F. R. S., Corresponding Member of the Institute of France; Member of the Royal Academy of Medicine of Paris, and of the Philosophical Society of Sienna; Senior Physician to the Bristol Infirmary. 8vo. London, 1835. Pp. xvi. and 483.

IN various volumes of this Journal, the attention of our readers has been called to the most important works on insanity which have appeared either here or on the continent. In the 30th, 31st, 32d, and 34th volumes, the writings of Bayle, Cal-

meil, Burrows, Knight, Guislain, and Conolly, on this subject, were noticed at considerable length, and the opinions of these writers minutely discussed. It is unnecessary, therefore, on the present occasion, to do more than present our readers with a short notice of the volume before us, more especially as it is our intention, as soon as we can find space, to make the comprehensive work of Hoffbauer the subject of discussion.

Dr Prichard's work originally appeared as an article in the Cyclopædia of Practical Medicine, and is now extended for the purpose of exhibiting the present state of knowledge and opinion on the whole subject of diseases affecting the mind. It consists of twelve chapters, and supplementary notes and discussions.

In the introductory chapter the author shows that the definitions of insanity given by various authors are unsatisfactory, and proposes to describe it "as a chronic disease, manifested by deviations from the healthy and natural state of the mind, such deviations consisting either in a *moral perversion*, or a disorder of the feelings, affections, and habits of the individual, or in intellectual derangement, which last is sometimes partial, namely, in monomania, affecting the understanding only in particular trains of thought; or general, and accompanied with excitement, namely, in *mania* or *raving madness;* and, lastly, confounding or destroying the connections or associations of ideas, and producing a state of incoherence."

These he distinguishes at greater length as follows:

"1. *Moral Insanity* or madness, consisting in a morbid perversion of the natural feelings, affections, inclinations, temper, habits, moral dispositions, and natural impulses, without any remarkable disorder or defect of the intellect, or knowing or reasoning faculties, and particularly, without any insane illusion or hallucination.

The three following modifications of the disease may be termed *intellectual insanity*, in contradistinction to the preceding form. They are severally,—

"2. *Monomania* or partial insanity, in which the understanding is partially disordered, or under the influence of some particular illusion, referring to one subject, and involving one train of ideas, while the intellectual powers appear, when exercised on other subjects, to be in a great measure unimpaired.

"3. *Mania* or raving madness, in which the understanding is generally deranged; the reasoning faculty, if not lost, is confused and disturbed in its exercise; the mind is in a state of morbid excitement, and the individual talks absurdly on every subject to which his thoughts are momentarily directed.

"4. *Incoherence* or dementia. By some persons it may be thought scarcely correct to term this a form of insanity, as it has been generally considered as a result and sequel of that disease. In some instances, however, mental derangement has nearly this character from the commencement, or at least assumes it at a very early pe-

riod. I am therefore justified in stating it, after Pinel, to be a fourth and distinct form of madness. It is thus characterized by that justly celebrated writer: "Rapid succession, or uninterrupted alternation of insulated ideas and evanescent and unconnected emotions; continually repeated acts of extravagance; complete forgetfulness of every previous state; diminished sensibility to external impressions; abolition of the faculty of judgment; perpetual activity."

In a supplementary note, he gives an abstract of Professor Heinroth's arrangement of the different forms of insanity, and the hypothesis upon which it is founded.

The second chapter is divided into nine sections. In the first, he considers moral insanity, or that form of mental derangement which consists "in a morbid perversion of the feelings, affections, and active powers, without any illusion or erroneous conviction impressed upon the understanding," sometimes co-existing with an apparently unimpaired state of the intellectual faculties. This state of matters he describes very graphically, and illustrates by quotations from Pinel, Esquirol, Georget, and Burrows.

In the remaining sections he considers monomania, the relation between it and moral insanity, the transition from the one to the other, mania, protracted or chronic insanity, dementia, the complication of insanity with general paralysis, the state of the sensorium and intellect and the disorders of the physical functions in the insane.

The third, fourth, and fifth chapters are devoted to the terminations and causes of insanity, and the changes of structure connected with it. The facts and opinions of various writers are succinctly and perspicuously detailed and discussed, and their errors acutely pointed out and refuted.

The obscure subject of the pathology of mental derangement is treated of in the sixth chapter. We can make room only for Dr Prichard's inferences. In those cases in which the brain and its membranes exhibit, after death, the signs of long-continued inflammation, and affection of the power of voluntary motion is combined with disorder of the intellect, there is sufficient reason for concluding, that the whole train of morbid phenomena depends from its commencement on inflammation of the parts in which the morbid appearances are observed.

"When again the intellectual faculties are affected in nearly a similar manner and degree, without disorder of the motive powers, as in cases of mania or monomania, complicated with, or passing into dementia, or in examples of dementia occurring under other circumstances, we have strong reasons for presuming on the existence of a similar morbid state, since, in these cases we find, after

death, the results of long-continued inflammation in the encephalon, and because these cases bear a close analogy in many respects to those which belong to the class above described."

In many cases the nature of the exciting causes, or of the circumstances preceding the disease, viewed in connection with the ultimate results, lead to the conclusion that the affection has throughout been of an inflammatory nature, as in mania consequent upon injury of the head, *coup de soleil*, excess of stimuli, &c. Dr Prichard admits, that in most cases of mania and monomania, the existence of inflammation is only a matter of probable inference, which, however, may be supported by arguments drawn;—1*st*, from analogy with other cases, in which the evidence of such a diseased state is stronger; 2*d*, from the morbid changes found in the encephalon after death, in protracted cases being such as inflammation induces; 3*d*, from the physical causes being such as give rise either to inflammation in the brain, or to a full and distended state of its vessels; and, 4*th*, from the connection of insanity with other diseases, known to depend on cerebral congestion or inflammation. The third argument, he admits, does not apply fully to cases of insanity induced by moral causes. But many of the moral causes of the disease are circumstances of excitement, giving rise to excessive action of the brain.

"The instances of mental disorder which leave the greatest doubt with respect to the presence of disease in the brain, are those of moral insanity, or disorder affecting merely the moral character, the propensities, habits, temper, and feelings, without involving any notable lesion of the understanding. In such cases, what proof have we that the brain is disordered? The complaint is often brought on by moral causes alone; it lasts for a time, and disappears without the aid of physical remedies, through the effect of time, and by the influence of circumstances which act upon the mind alone. If we were assured that the brain is what some German physicians term it, the *seelenorgan*, or instrument in all the manifestations of the mind, or the attributes of the soul, we might be at liberty to conclude, that disorders in the affections and feelings, imply, not less than intellectual disturbances, some disorder in the brain. But this preliminary step has not been gained. * * * * Without attempting a solution of this general question of physiology, we may collect some facts which render it probable that moral insanity depends, in some instances at least, on disease of the brain."

"1. The characteristics of moral insanity, obliquity of character, perversion of the natural temper and disposition, without any aberration of intellect, occasionally supervene on manifest cerebral disorders.

"2. Similar phenomena, with eccentricity of conduct and habit,

belong sometimes to individuals in families in which intellectual madness and other cerebral diseases are hereditary,

"3. Some cases of moral insanity are manifestly connected with diseases affecting the bodily constitution, and particularly the brain. * * * Cases in which such a connection is apparent, and may be demonstrated, are probably by no means the majority among the instances of disordered propensity, but from these we may draw an inference by analogy to the remainder, and this, I apprehend, is all the evidence that can be furnished of the existence of cerebral or other bodily disease in many examples of moral insanity.

"I shall close these remarks on the proofs of cerebral inflammation in mental derangement, with one observation which will be found important in a practical point of view. If it were allowed that the proximate cause of this disease, or the state of the brain on which it depends in its origin or first accession is not proved to be, generally speaking, of the nature of inflammation, still we know sufficiently from necroscopy, that the results of inflammatory action take place in cases which have any considerable duration, and that the disorganized state of the brain, which renders recovery impossible, or generally precludes it, in the advanced stage, is produced by inflammation. We have, then, in practice, nearly as strong inducement for treating the disease on antiphlogistic principles, as if we were sure that cerebral inflammation, in the strict sense of the terms, was its proximate cause."

Sympathetic or secondary affections of the brain, manifested by derangement of the mind, he considers to be more frequent than is generally admitted. It is easy to see how disorders of the alimentary canal should have this effect. But "the theory of mental disorders arising from morbid states of other viscera, is more obscure than what regards the stomach, because these instances are more removed from immediate observations and experiment; but that diseases of the liver, the lungs, and other viscera, are connected under a similar relation with affections of the brain and consequent disturbances in the exercise of the mental faculties, is a position which scarcely admits of doubt. In all these instances, the morbid state of the brain, which, though a secondary or sympathic affection is the immediate cause of derangement in the mind, is probably of the same nature in itself as the morbid condition, which arises primarily from causes acting immediately on the cerebral and nervous system."

The remaining chapters are devoted to the treatment of insanity, to puerperal madness, idiotism, and mental deficiency, the statistics of insanity, the medico-legal questions connected with insanity, and to ecstatic affections. The supplement contains some strictures on phrenology, and the later researches into the functions of the brain.

Our notice of this volume has been necessarily short, in consequence of the plan on which it is written. It is in fact itself

a critical analysis of the works of others, interspersed with such views as the author's experience and mature consideration of the subject have led him to adopt, and thus to have entered minutely into it would have led us to discuss topics, which will be found amply considered in other volumes of this Journal. The most valuable part of the work is that devoted to moral insanity, which will be perused with advantage by the non-professional as well as the professional reader.

We think it but justice to state in conclusion, that we look upon Dr Prichard's work as an excellent introduction to the study of this most important though obscure department of medicine.

ART. VI.—*Catalogue Raisonnée; or Classified Arrangement of the Books in the Library of the Medical Society of Edinburgh, instituted* 1737. Edinburgh, 1837, 8vo. pp. 342.

OF this publication, which promises to be of great utility, not only to the members of the society of the library of which it forms the methodized catalogue, but to others wishing to cultivate the knowledge of particular departments of medical science, it is our duty to mention the appearance and merits, however shortly.

It is impossible not to regard it as a work, which is at once an indication of considerable acquaintance with medical literature, and a means of facilitating to the junior members of the profession generally, that progress in medical knowledge which can alone give the practitioner the character of a well-informed and intelligent observer.

The catalogue is divided into four parts,—the first relating to works on Medicine; the second embracing those on Science, including Physics and Chemistry, Natural History and Pyschology; the third presenting works on general Literature; and the fourth Miscellaneous Works not referable to any of the previous heads; and the Journals, Reviews, and other Periodical publications.

The Medical Department is subdivided in the following order,—Anatomy, Human and Comparative; Physiology; Materia Medica and Pharmacy, including Hygieine and Therapeutics; General Pathology and Practice of Physic; Surgery; Midwifery, and Diseases of Women and Children; Medical Jurisprudence and Medical Police; and Medical Literature.

Under these several heads the respective works are very well and ably arranged, in such a manner as to afford the student, at a single glance, the principal works which he requires to con-

sult or peruse, in order to become well acquainted with the state of knowledge on any given subject in each.

This undertaking has been long and deservedly a favourite object with the Medical Society of Edinburgh; and we sincerely congratulate the Society and the profession in seeing it now accomplished in a manner so creditable and useful. The work was so much more requisite, that the library has now, in the lapse of a century, become one of the most extensive and valuable in medical writings and treatises, in the country; and indeed, few, except those well acquainted with medical literature, knew the exact amount of its treasures. The present catalogue, by presenting a view of the works on each department, and on each subject, will be of great value to the student and practitioner.

To recommend it therefore to the profession is almost superfluous. We believe that its existence can no sooner be known, than its value will be recognized.

It is proper to say, that the arrangement is clear and methodical, and as closely observed, as, in such circumstances, is practicable.

It may not be unseasonable to remark, that the arrangement and composition of this catalogue, forms an appropriate undertaking to distinguish the centenary period of the existence of this Society. We shall be indeed greatly mistaken, if this catalogue be not received by every Member of the Society in the different regions of the habitable globe, as a proof of the warm interest, which the present Members still continue to feel in the advancement and diffusion of medical knowledge. It must show that the Society, though aged, is neither decrepit nor inactive, and that her energies continue vigorous and unimpaired.

PART III.

MEDICAL INTELLIGENCE.

PHYSIOLOGY.

Physiological Remarks on certain Muscles of the Upper Extremity, especially on the Pectoralis Major. By F. O. Ward, Esq. King's College, London. (From London and Edinburgh Philosophical Magazine, No. 56.)—There is a remarkable fold in the tendon of the *pectoralis major* which, though described by all anatomists, Mr Ward considers not to have been satisfactorily explained. The muscle consists of two portions, one smaller and upper, arising from the clavicle, and passing outwards and downwards; the other, large and lower, arising from the sternum and ribs, passing upwards and outwards. The fibres of the muscle thus converging terminate in a flat tendon, which is inserted into the upper part of the humerus.

Instead, however, of having the insertion usually described, the lower part of the tendon is folded up behind the upper portion, so that the lower margin appears above the upper.

Mr Ward objects to the usual explanations of the use of this fold, viz. as being designed to diminish the extent of the insertion, or to equalize the length of the muscular fibres, as they give no reason why the lower part is inserted above, and the upper below, the medium point of the whole insertion; but thinks that the arrangement becomes perfectly intelligible, when the actions of the upper and lower portions are considered separately.

He states that the action of the lower fibres is to depress the arm when raised; those of the upper ones to raise the arm when depressed; and refers for confirmation of this opinion to the convulsive contraction of the lower fibres sensible to the touch, while imitating the action of hammering, and the continued tension of the upper while raising or supporting a weight.

Since the humerus is a lever having the fulcrum at one end, and the resistance at the other, the velocity it requires must be directly, and the force inversely proportionate to the proximity of the moving power to the fulcrum. The most common use to which the depressing fibres are applied, is that of bringing down the arm in hammering, &c.; and as here velocity is alone required, the gravity of the tool giving force to the blow, the lower division is attached near the fulcrum. Again, the upper fibres are used chiefly in lifting, &c. where force and not velocity are required, and to effect this these fibres are inserted as near as possible to the resistance. Thus, the very fasciculus of the muscle which possesses most of the action peculiar to its division, possesses likewise the very point of insertion which affords it most of the leverage it requires, adding another to the innumerable proofs of the minute accuracy of the animal organization.

Any action which requires a species of motion contrary to that which either portion is adapted to produce, as turning a winch, &c. very soon fatigues the muscle.

Mr Ward thinks, that the muscles associated with each division of the *pectoralis major*, confirm the truth of the explanation he has proposed by

the analogy of their insertions, thus the *coraco-brachialis* and anterior fibres of the deltoid, which co-operate with the upper division of the *pectoralis major*, are attached to the front of the humerus half way down, for the purpose of giving force; while, on the contrary, the *teres major* and *latissimus dorsi*, which co-operate with the lower division in depressing the humerus, are inserted like it near the fulcrum of the lever, being attached to the inner margin of the bicipital groove just opposite the tendon of the pectoralis. These two muscles, he remarks, are in several respects analogous to the divisions of the *pectoralis major*. The *teres major*, which is superior and smaller, may be compared to that portion of the pectoralis which arises from the clavicle, and the *latissimus dorsi*, which is large and inferior, that arising from the sternum and ribs. The tendons of these two muscles, like the divisions of the pectoralis, are continuous at their lowest margins; and, as if to render the analogy complete, the lowest fibres of the *latissimus dorsi* are folded round those of the teres, and inserted above it, because in this position they are most effective in drawing down the bone, as when lifted to strike. He considers his explanation still farther supported by the arrangement of the pectoralis in birds; in them there is no crossing of the fibres; they all assist in the performance of one action, and hence are inserted in the same order as they arise.

Mr Ward observes, that the action of throwing the extremity forward, as in boxing, appears at first sight to throw doubt over the correctness of his explanation. This action requires great velocity; and although all the fibres of the *pectoralis major* are brought into play, yet the upper set, or those of least velocity, are the principal agents. He observes that, in this action, the space passed through by the fore-arm considerably exceeds that passed through by the arm; and that, as the motion of the fore-arm is from above downwards, its extensors are assisted by gravity; whereas the humerus, though it moves through a shorter distance, moves upwards, and carries with it the fore-arm, so that its elevators have to raise a considerable weight; and in order that these two motions may take place within the same time, the former requires the greater velocity, the latter the greater force. Accordingly, the triceps, &c. act on the ulna by a lever two inches long, while the elevators of the humerus act by levers whose respective lengths are about four, five, and six inches. Thus, the leverage of the upper and lower portions of the pectoralis are accurately adapted to the actions of lifting, &c. and also co-operates harmoniously with the triceps in striking forwards; unequal spaces being traversed, and unequal resistances overcome, in the same period of time, so that the resulting position of the limb is precisely the one required; while the strength of the one set of muscles bears such a proportion to that of the set with which it acts in concert, that both remain unfatigued for the same number of actions.

CHEMISTRY.

New method of preparing Iodic Acid. By Lewis Thompson, Esq. (From the Lond. and Edinb. Philosoph. Magazine, December, 1836.) Put one atom, or 126 grains of iodine, into a proper bottle, with 24 ounces of water, and pass chlorine previously washed in cold water through the mixture, until it shall have become colourless; set the solution aside for an hour; then heat it to 212° Fah. to disengage the uncombined chlorine, and add 2½ atoms, or 295 grains, of recently precipitated oxide of silver; boil the whole for ten minutes, filter and evaporate carefully to dryness. The product is pure anhydrous iodic acid.

Mr Thompson concludes, from the above process, that there is no such acid as the chloriodic, the acid so called being in fact merely a chloride of iodine, which, when dissolved, is converted into muriatic and iodic acids,

and a variable quantity of iodine. He has never been able to unite chlorine and iodine in the proportions necessary to form these acids without the intervention of water, and an excess of iodine; but he believes it may be effected in a sufficiently reduced temperature. In one experiment, 50 grains of iodine were combined with 41.5 cubic inches, or about 30 grains of chlorine; the substance thus formed when put into a large quantity of water, and exposed for some days to the sunshine, deposited 8 grains of iodine, and became of a pale yellow colour.

Mr Thompson is convinced that the muriatic and iodic acids exist ready formed in the solution, not only from the taste and smell, but because he obtained free muriatic acid from it by distillation, although, when this was continued until the solution became a good deal concentrated, these acids re-acted on one another, producing chlorine and iodine.

The iodate of ammonia, he states to be a highly crystalline granular powder, possessed of but little solubility; it is prepared by saturating the solution of the muriatic and iodic acids with ammonia when it falls down, leaving the muriate in solution. He finds that the iodic acid is decomposed by sulpho-cyanic acid, and the sulpho-cyanates of potassa and soda, and also that saliva, in consequence probably of the sulpho-cyanate of potassa which it contains, decomposes iodic acid, and produces with it, and starch a blue precipitate, not distinguishable from that produced under similar circumstances by morphia.

The importance of this discovery, in a medico-legal point of view, is considerable, since iodic acid is now relied on by many as a test for morphia.

Mr Thompson thinks the above method for preparing iodic acid cheaper and safer than that of Sir Humphry Davy, and that it affords a purer acid than that of Gay Lussac. He agrees with Davy in thinking, that Gay Lussac's acid is sulpho-iodic and not iodic acid.

Analysis of Tartar Emetic. By Mr Richardson. (From the Records of Science for October 1836.)—Mr Philips' analysis of this salt, differing from Dr Thomson's in the proportion of the water which it contains, Mr Richardson repeated the experiments of the latter, employing the same specimen. The analysis was conducted in the following manner: 25 grains were heated for a considerable time on the sand-bath, at a temperatuae of about 400° F. and lost 1.21 grains, or 4.84 per cent. The residuum was dissolved in water, and the antimony precipitated by sulphuretted hydrogen. The precipitate, after being washed and dried, weighed 13.3 grains. But 11 sesqui-sulphuret of antimony, : 8 antimony, :: 13.3 : 9.67 grains, = 11.48 grains oxide of antimony. The liquid and washings from the above precipitate were carefully evaporated to dryness, and the residual salt weighed 13.23 grains. From the composition of bitartrate of potassa, it follows that the result is

Oxide of antimony, -	45.92
Potassa, - - -	12.80
Tartaric acid, - -	35.25
Water, - - -	4.84

These being resolved into atoms, gives the following constitution.

Oxide of antimony, -	4.83	2.26 atoms.
Potassa, - - -	2.13	1.00
Tartaric acid, - -	4.27	2.00
Water, - - -	4.30	2.01

The result of Dr Thomson's analysis was

1.997 at.	tartaric acid.
1.92	protoxide of antimony.
1.	potassa.
2.139	water.

The mean of the two analyses.

Oxide of antimony, -	2.12
Potassa, - - -	1.00
Tartaric acid, - -	1.96
Water, - - -	2.07

Leaving no doubt of the true composition of the salt,

being 2 at.	oxide of antimony	19.00
1	potassa, -	6.00
2	tart. acid -	16.50
2	water, - -	2.25
		43.75

SURGERY.

Case of fall from a great height, with various injuries—followed by recovery, by J. PATERSON, Esq. Surgeon.—Private Thomas Gough, 42d Royal Highlanders, aged 19½ years, on the 29th of August, whilst in a state of intoxication, attempted to escape from the castle of Edinburgh, in consequence of being refused leave to visit the city. For this purpose he chose the south side, and made his exit through a small embrasure overlooking the most precipitous and rugged face of the castle rock. His intention was, to jump upon a projecting ledge, from which he imagined he could scramble down the remaining part of the descent; but in doing so he broke his left leg; and in his own words, "stotted from rock to rock, till the road keppet him." He fell the astonishing height of 170 feet almost perpendicular: and was found on the road immediately after his fall, quite insensible, and bleeding profusely.

He was instantly carried into the Castle, and on examination it was found he had received the following injuries; viz. three deep wounds on the head, in two of which the bone was exposed, and there was a fracture over the right frontal sinus;—the left clavicle was fractured about one inch from the sternal articulation;—the right wrist-joint was dislocated backwards, and both the radius and ulna of the same side were fractured;—there was an extensive bruised wound in the right ilium;—and the left tibia and fibula were fractured about two inches above the ancle-joint!

He was occasionally delirious for several days; but, with this exception, not a bad symptom appeared. He is now (2d Oct.) nearly well, and there is every prospect of his resuming his military duties in a very short time.

Dec. 14.—The wrist-joint remained weak and enlarged for some time. He has now been discharged from the Hospital; for a month has resumed all his duties as an efficient soldier.

MISCELLANEOUS.

LONDON UNIVERSITY.—In our last number, we gave a draft of the charter proposed to be granted. Since then it has received the sign manual, and has been published in its completed form. The only alterations appear to be in two of the paragraphs near the end, which we now give in their amended form:—

"And for the purpose of granting the degrees of Bachelor of Medicine, and Doctor of Medicine; and for the improvement of medical education in all its branches, as well in medicine as in surgery, midwifery, and pharmacy, We do further hereby will and ordain that the said Chancellor, Vice-Chancellor, and Fellows, shall from time to time report to one of our principal Secretaries of State, what appear to them to be the medical institutions and schools, whether corporate or unincorporated, in this our metropolis, or in other parts of our united kingdom, from which either singly or jointly with other medical institutions and schools in the country, or in foreign parts, it may be fit and expedient in the judgment of the said Chancellor, Vice-Chancellor, and Fellows, to admit candidates for

medical degrees, and on approval of such report by our said Secretary of State, shall admit all persons as candidates for the respective degrees of Bachelor of Medicine, and Doctor of Medicine," &c.

"That the said Chancellor, Vice-Chancellor, and Fellows, shall have power, after examination, to confer the several degrees of Bachelor of Arts, Master of Arts, Bachelor of Laws, Doctor of Laws, Bachelor of Medicine, Doctor of Medicine, and to examine for medical degrees in the four branches of medicine, surgery, midwifery, and pharmacy, and that such reasonable fees shall be charged for the degrees so conferred as the said Chancellor, Vice-Chancellor, and Fellows, with the approbation of the Commissioners of our Treasury, shall from time to time direct."

The following are the Chancellor, Vice-Chancellor, and Fellows named.

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Centenary of the Medical Society of Edinburgh.—The Centenary of the Medical Society of Edinburgh will be celebrated by a dinner, to take place at the Hopetoun Rooms, on Friday the 17th of February, Dr Hope, V. P. R. S. E., Professor of Chemistry in the University of Edinburgh, in the Chair. The Society will meet an hour before dinner, to hear an oration by the Senior President.

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THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. APRIL 1837.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Clinical Report of the Cases treated in the Fever-Ward, No. 9, of the Royal Infirmary, Edinburgh, during the year* 1836–1837. By DAVID CRAIGIE, M.D., F.R.S.E. Physician to the Royal Infirmary. (Published by permission of the Honourable the Board of Managers.)

CIRCUMSTANCES which it is unnecessary to detail, required me this season to resume my attendance at the Royal Infirmary on the 28th of June 1836, at a period nearly four months earlier than the ordinary date; and as this will have the effect, not only of enlarging considerably the period of attendance for this year, but of increasing the number of cases treated, it appeared to me to be most convenient to subdivide the report of the Fever cases into two divisions, each embracing, as near as may be, the period of about eight months. In the present report, I propose to give a general sketch of the cases treated from the 28th of June 1836 to the 12th of February 1837, which will nearly include one-half of the whole cases treated.

Though in these cases the disease presented the general characters of *Synochus* or *Typhus* as it takes place in this country, yet it was attended with some peculiarities which deserve attention. Though these will partly appear in the course of the necroscopic reports and the concluding summary, others are such that they require to be previously noticed.

1	June 26	J. Fraser	22		Painter	Irregular	Contagion	9th	rate strength	Pain of head, delirium	Spots	30	Cured
2	June 26	D. Fraser	28		Cooper	Debauched	do.	9th	104, feeble	Delirium & typho-mania	Whole body	28	do.
3	June 23	J. Fraser	22		Labourer	Regular	Wet	6th	84, full	Pain of head			
4	June 30	W. Smith	18	Cowgate	Carter	do.	Contagion	2d	100, full and tense	Pain of head and chest, delirium and cough	Detached spots	16	do.
5	June 30	R. Grubb	17		Cooper	do.			100	Pain of head, chest, and epigastrium		25	do.
6	July 2	J. Anderson	7					2d	132, small	Sore throat	Bright	22	do.
7	July 5	A. Erskine	17				Drinking overheated	8th	109, strong and hard	Epigastric pain		33	do.
8	July 5	C. Tennent	11				Contagion		120, full and throbbing	Epigast. & umbilic. pain		30	do.
9	July 7	H. Tierney	18					7th	84, feeble	Pain of head, throat, chest, and belly	Scatter. dingy coloured spots	7	Died
10	July 9	R. Wilkinson	24 ?			Regular		10th	108, full and strong	Pain of head and belly, delirium	Stigmata and irregular spots	30	Cured
11	July 12	S. Steuart	33			Irregular		6th	112	Debility, headach, deafness, and cough.	Livid spots at admission	18	do.
12	July 12	W. Coutts	29	Penicuick	Shoemaker	Sober			100, good st.	Headach, deafness, approaching stupor, epigastric tenderness		38	do.
13	July 18	J. Davie	16	Fountbridge	Milk-carrier	do.	Cold & wet	12th	80	Gen. tend. of abdomen	None	21	do.
14	July 19	R. Erskine	37		Porter	Irregular	Contagion	4th		Headach, suffused eyes, epigastric pain & tension	None	10	do.
15	July 26	Williamson	12		Shoemaker		Cold & wet	12th	100, quick and small	Pain of head and epigastric region		18	do.
16	July 28	B. Donaldson	54		Shoemaker	do.	Contagion	9th	120, feeble	Headach, epigastric and substernal soreness	Petechiæ	22	do.
17	July 30	W. Barry	48	Leith Walk	Ironfounder			13th	110, feeble	Headach, epigastric tenderness, musc. tremors	do.	32	do.
18	July 30	D. M'Leod	35		Shoemaker	do.	Unknown	4th	112	Headach & epigast. pain	do.	20	do.
19	Aug. 1	H. Webster	13	High sc. cl.	Glazier		Unknown	8th	126	Headach, injected eyes, intol. of light, cough, son. rhonchus & sibl. wheeze.	None	68	do.
20	Aug. 5	J. Hart	22		Spirit dealer	Debauched		13th	116, oppr.	Suffused eyes, delirium, hiccup, and convulsions	Petechiæ	2	Died
21	Aug. 6	G. Galloway	12					9th	110	Epig. & umbilical pain		30	Cured

22	Aug. 7	J. Gorman	56	Cowgate	Pawnbroker	Debauched	Drinking.	9th	100, small	General oppression, pain of head, typhomania	Bright coloured.		Cured
23	Aug. 11	J. Divine	13	Leith Wynd				8th	110	Headach, sore throat, and epigastric pains	Spots on arm	22	do.
24	Aug. 11	O. M'Intyre	12	Causeway-side.	Carter		Contagion & blow on head	6th	11	Frontal headach, delirium		25	do.
25	Aug. 11	J. Paton	22	Canongate	Labourer	Regular	Spontaneous	8th	112	Head, throat, and chest		20	do.
26	Aug. 14	T. Grieve	40	Lasswade	Labourer	Debauched	Contagion	14th	124, feeble	Head, general oppression, epigastric pain.		12	Died
27	Aug. 14	L. Grieve	11	Lasswade	Carter		do.	8th	110, feeble	Headach		19	Cured
28	Aug. 14	W. Paulin	17	Stockbridge	Poulterer	Regular		8th	108	Headach, pains in limbs, epigastric tenderness.	Eruption.	29	do.
29	Aug. 16	J. Cowan	22		Labourer	do.	Cold & wet	5th	124	Headach, cough, and pain of chest		23	do.
30	Aug. 16	J. M'Kinnis	23	London-derry.	Labourer	Irregular	Contagion	12th	96	Pain of head and chest, cough, sonorous and sibilous wheeze.	None	43	Cured
31	Aug. 17	L. Stewart	35	Bank street.	Hawker		None	6th	108	Pain of head, vertigo	do.	16	do.
32	Aug. 20	E. Boyle	30	Donegal	Labourer		do.	8th	120	Pain of head and epigast.	Admittance	31	do.
33	Aug. 22	A. Young	24	Grassmarket	Porter	do.	Cold	6th	96	Pain of head and prostration	8th day	19	do.
34	Aug. 29	J. Adamson	40	Gifford Park	Collarmaker		None	14th	140, tense	Pain of head, musc. tren.	None	8	Died
35	Aug. 29	W. Dingwall	18	Richmond st.	Confectioner		do.	6th	92, feeble	Pain of head and epigastric region.	do.	23	Cured
36	Aug. 29	A. Currie	27	Monaghan	Labourer		Cold & wet	8th	90, full	Do. do.	do.	30	do.
37	Aug. 28	H. Leith	40	Stromness	Sailor	Irregular	do.	5th	90	Pain of head, sickness and vomit. typhomania and muscular tremors.	do.	14	do.
38	Sept. 1	J. Campbell	39	Leith	Shoemaker	do.	None	5th	104	Pain of head and epigastric soreness	On the 6th day	20	do.
39	Sept. 1	B. Robertson	19	Stockbridge	Shoemaker		Contagion	5th	110	Pain of head and epigast. reg. skin hard and dry	None	29	do.
40	Sept. 1	D. Robertson	14	Stockbridge	Globe maker		do.	8th	120	Pain of head and epigastric region	On the day of admission	26	do.
41	Aug. 31	S. Sangster	34	Leith	Hairdresser	do.	Fatigue	8th	96	Pain of head and epig.	do. do.	21	do.
42	Sept. 2	N. M'Innon	40	Isle of Skye	Labourer			14th	130, feeble	Stupor, fatuous expression of countenance		24	do.
43	Sept. 3	J. Murray	20	Derry	Labourer		Wet & cold	4th	116	Pain of head and epigast.	None	17	do.
44	Sept. 3	D. Kilorn	32	Sligo	Labourer	Regular	Cold & wet	14th	96	General prostration and a parotid swelling	None	24	do.
45	Sept. 6	W. Moncur	19	West Port	Carter	Irregular	Contagion	8th	96	Epigastric pain with slight pain of head	Spotted on 10th day of disease	20	do.
46	Sept. 6	J. Killidie	14		None	Regular	Unknown	8th	96	Pain of head and cough	None	2	do.

47	Sept.	6	J. Welsh	31	Libberton	Labourer		Cold & wet	4th	96	Pain of head and chest, with cough and crepitous rattle.	None	14	Died
48	Sept.	5	N. M'Donald	27	Roxburgh	do.	Regular	do.	4th	116	Headach, injected eyes, and epigastric pain	do.	22	Cured
49	Sept.	5	J. Henley	25	Rosscomm.	Tailor			14th	100	Headach, and inject. eye	do.	17	do.
50	Sept.	6	J. Kellalie								Slight fever		3	do.
51	Sept.	8	J. Campbell										12	do.
52	Sept.	7	M. Early	22	Enniskillin	Labourer		Cold & wet	6th	96	Pain of head and at lower portion of the chest, with much cough.	None	30	do.
53	Sept.	7	A. Cameron	19	Isle of Skye	do.			6th	100	Great prost. severe pain of head and epig. region	do.	2	Died
54	Sept.	8	J. Millar	24	West Port	Cabinetmak.			4th	104	Pain of head and epigast. restls. moan. and vomit.	do.	32	Cured
55	Sept.	8	J. Hanna	20	Monaghan	Labourer			8th	80	Pain of head and epigas.	do.	6	do.
56	Sept.	9	T. Henderson	15	High Street	None	Regular	Cold	8th	108, full and strong	Frontal and epigastric pain	9th day	33	Cured
57	Sept.	11	M'Quarrie	14	Canongate	do.	do.	Contagion	8th	112, full	Pain of head epigastrium and gen. pain over surfac.	8th day	31	do.
58	Sept.	11	W. Robertson	20	Stockbridge	Painter	Debauched	do.	7th	108, full and strong	Pain of head, eyes injected, typhomania	Body covered	6	Died
59	Sept.	12	M'Donald	40	High Street	Labourer	Irregular	Cold & wet	8th	88	Head and epigastrium, typhomania	10th day	26	Cured
60	Sept.	12	T. Smith	9	Stockbridge	None	Regular	Contagion	11th	112	Pain of head and epigastric region. No delirium	Body covered	28	do.
61	Sept.	12	M'Millan	17	Leith Walk	Painter	Irregular	do.	8th	92	Pain of head, epigast. and hypochond.	None	24	do.
62	Sept.	12	M. Higgins	11	Ireland	Labourer	Regular	None	5th	104, full	General tenderness and epigastric pain	do.	29	do.
63	Sept.	13	J. Higgins	17	do.	do.	do.	do.	6th	120	Pain in head and epig.	do.	13	do.
64	Sept.	13	T. Millar	12	West Port	None	do.	Contagion	2d	96	Pain in head, eyes injected, and typhomania	7th day	25	do.

ept. 16	T. Mason	24	CastleWynd	Labourer	Dissipated	None	8th	120, moderate strength	Pain of head and epigas. vomit. & slight delirium.	On entering	28	Cured
ept. 14	D. Muat	17	Grassmarket	Weaver	Regular	do.	6th	80, good st.	Pain of head and general uneasiness	None	6	do.
ept. 13	J. Campbell	36	Glasgow	Spirit dealer	Irregular	Cold	6th	84, soft	Pain of head & delirium	do.	15	do.
ept. 15	M. Kilorn	12	Ireland	Labourer	Regular	Contagion	5th	112, regular	Pain in head and umbilical region	do.	27	do.
ept. 16	J. Mill	16	Low. Calton	Grocer	do.	Cold	7th	80, full	Pain of right hypochondrium and head	do.	13	do.
ept. 17	J. Clark	9	Stockbridge	None	do.	do.	8th	104	Epigastric pain, and slight pain of head	do.	26	do.
ept. 17	J. M'Guire	23	Cowgate	Labourer	do.	None.	8th	108	Headach, delirium, stupor, and epigastric pain	do.	26	do.
ept. 20	J. Arnot	27	High Street	Butcher	Irregular	Cold		132, tense and full	Pain of right side of chest, crepitous râle, and pain over the body	None	113	Died
ept. 21	H. Wood	18		Hostler	do.	do.	2d	112	Pain of head and general tenderness	do	7	Cured
ept. 22	B. M'Gowan	50		Labourer	do.	Contagion	7th	120, good strength	Typhomania, general pain, gangrene of 3d and 4th toes of right foot	At entry	40	do
ept. 24	A. Macarthur	9	Grassmarket	None	Regular	*	2d	112	Pain of head, tenderness of abdomen	None	37	do
ept. 24	J. Fram	11	Stockbridge	do.	do.	Contagion	7th	100	Pain of head, typhomania, subsultus, deafness	do	40	do
ept. 25	J. Collins	20		Labourer	do.	Cold	4th	100, full	Pain of chest with crepitous rattle	do	17	do
ept. 24	P. Clark	25		do.	Irregular	do	3d	120, small and tense	Pain of side, cough, and difficult respiration	do	7	Died
ept. 28	J. Cameron	12	High Street	None	Regular	Contagion	7th	112,	Pain of head & epigast.	do	21	Cured
ept. 28	P. Gorman	35	do.	Labourer	Irregular	None	8th	96, full	Pain of head, and epigast. which is distended	At entry	21	do
ept. 27	J. Lafferty	36		do.	do	do	6th	80, soft	Pain of abdom., diarrhœa	None	35	do
ept. 29	A. Divine	12	Cowgate	do.	Regular	Cold	4th	80, full	Pain of head & epigast.	do	11	do
ept. 28	T. Fram	43	Stockbridge	Butcher	Irregular	Contagion	8th	84, full	Do and delirium	Distinct	37	do

* Was in Surgical Hospital for *hernia humoralis* when he became affected with fever.

Date of admission.	Name.	Age.	Residence.	Occupation.	Habits.	Alleged cause.	Day of disease.	Pulse on admission.	Local symptoms.	Appearance of eruption.	Days in house.	Event.
Sept. 30	A. O'Brien	26		Labourer	Irregular	Wet	4th	100	Pain of head & epigast. and boil on right leg	None	61	Cured
Oct. 1	J. Anderson	17	Stockbridge	None	Regular	Contagion	8th	76	Pain in head, violent delirium, and extreme tenderness of abdomen.	do	14	Died
Oct. 1	J. Gorman	12	House of ref.	do.	do.	do	3d	76	Pain of head and chest, with bronchial respiration and cough	do	19	Cured
Oct. 4	J. Smith	14	Pitt Street	do.	do.	do	5th	108	Epigastric pain and general tenderness of belly	Faint spotted	17	do
Oct. 4	W. Smith	12	do.	do.	do.	do	4th	120	Pain of head, giddiness, faintness, and epigastric pain	6th day	20	do
Oct. 4	R. Fram	14	Stockbridge	do.	do.	do	4th	96, full	Pain of head, with much pain in back	None	31	do
Oct. 5	T.M'Lachlan	21	from Ireland	Labourer	Irregular	Cold	8th	128	Pain of head, typho-mania, & muscular tremors	At entry	28	do
Oct. 6	W. Peaston	24	Hatter's cl.	Plumber	Regular	do	8th	120	Pain of head	None	18	do
Oct. 7	J. Tolby	22	Grassmarket	Labourer	Dissipated	do	3d	112	Pain of chest, crepitous rattle, typho-mania	do	6	Died
Oct. 7	T. Molegans	14	High Street	None	Regular	Contagion	3d	100	Pain of head and epigastric region	do	22	Cured
Oct. 7	P. Dolland	34	Grassmarket	Labourer	Irregular	Cold	8th	120	Pain of head with delir.	At entry	32	do
Oct. 8	A. Lauder	35	High Street	Carter	do.	None	8th	96	Pain of head, cough, and rapid breathing	do	31	do
Oct. 8	T. Tait	22	Grassmarket	Shoemaker	Regular	do	6th	80	General uneasiness of the body, diarrhœa	None	31	do
Oct. 10	J. Fraser	20	High Street	do.	do.	Contagion	4th	104, full	Pain of head and epigast. region, with urgent thirst	At entry	21	do
Oct. 10	J. Napier	24	High sc. yds.	Brewer's ser.	Dissipated	None	4th	96, strong and full	Pain of iliac reg. & chest. cough & viscid expect. violent delirium		2	Died

Oct.	11	W. Blackie	5		None	Regular	Contagion	4th	120	Epigastric pain	do	45	Cured
Oct.	13	W. Brown	20	Grassmarket	Sail-maker	Irregular	do,	4th	88, full	Pain of head and epigast. reg. typho-mania, abscess on hip and shoulder, erysipelas of face and belly	8th day	61	do
Oct.	17	G. Ryrie	58	Stockbridge	Labourer	Irregular	Contagion	2d	96	Slight pain of head and cough	None	16	Cured
Oct.	17	D. Murphy	56	Cowgate	Porter	Dissipated	Cold	2d	80, variable	Pain of chest at lower part, gangrene of lung	3d day	30	Died
Oct.	19	A. Mack	23	Stockbridge	Baker	Irregular	Contagion	4th	112	Pain of head, rapid breathing, typhomania	At entry	4	do
Oct.	19	W. Hodge	6	do.	None	Regular	do	6th	128	Pain of head & epigast.	None	28	Cured
Oct.	19	A. Hodge	9	do.	do.	do.	do	13th	76	Pain of head and general tenderness	do	28	do
Oct.	19	A. Hodge	30	do.	Butcher	do.	do	5th	100, full	Pain of head and epigast. typho-mania	6th day	5	Died
Oct.	21	N. M'Kay	22	High Street	Nt. watch.	Irregular	Cold & wet	6th	112	Pain of head, typho-man.	None	22	Cured
Oct.	22	T. Brown	27	Canongate	Flax dresser	do.	Cold	3d		Headach and giddiness	do	23	do
Oct.	26	H. Morrison	24	High Street	Policeman	do.	do	7th	100	Pain of head, double parotid tumour	At entry	20	Died
Oct.	26	T. Dolland	9	Ireland	None	Regular	Contagion	6th	120	Pain of head	do	15	Cured
Oct.	27	W. Maitland	18	Cowgate	do.	Irregular	Cold	4th	74	do	None	11	do
Oct.	27	T. Harris	38	Grassmarket	Hawker	do.	do	7th	128	Headach, epigast. pain, cough, and pain of chest	do	9	Died
Oct.	28	J. M'Kenzie	14	Cowgate	Ropemaker	Regular	do	6th		Pain of belly and head	At entry	25	Cured
Oct.	28	W. Weir	13	Leith wynd	None	Regular	Cold & wet	1st	10 of good strength	Pain of head and epigast. reg. with sleeplessness.	4th day	28	do.
Oct.	30	W. Bryson	15	H. of Refuge	do	Irregular	Cold	7th	96, full	Pain of head	At admission	18	do
Oct.	31	J. Reddy	38	High Street	Labourer		Fatigue	4th	76	Great prostration & pain of head.	None	11	do
Oct.	31	R. Ramsay	19	Canongate	Combmaker	do	Contagion	4th	120	Pain of head & soreness at the epigast. reg. a convulsive fit.	At admission	6	Died
Oct.	31	P. Hodge	17	Stockbridge	Hostler	do	do	6th	120, feeble	Pain of head and epigast.	do	36	Cured

Date of admission.	Name.	Age.	Residence.	Occupation.	Habits.	Alleged cause.	Day of disease.	Pulse on admission.	Local symptoms.	Appearance of eruption.	Days in house.	Event.
Oct. 31	J. Collins	20		Labourer	Regular	None	4th	96	Pain of head, typhoman. tumour at each angle of lower jaw	5th day	30	Cured
Nov. 2	T. Ramsay	50	Canongate	Gravedigger	Irregular	Contagion	26th?	120, feeble	Apathy, gen. feebleness, typhomania, subsultus, epigastric tenderness	At admission	9	Died
Nov. 5	D. Morrison	25	Carnegie st			do	7th	88, full	Headach, injected eyes	do	25	do
Nov. 5	J. Logan	54	Barnsley	Labourer	do		10th	80	Headach, red watery eyes, cough, typhomania, subsultus	None	2½	do
Nov. 6	G. Russell	23	Carnegie st	Brewer's ser.	do	do	10th	132	Insensibility, coldness & blueness of surface & extremities	Brown at admission	6	do
Nov. 10	Montgomery	25	Canongate		do	do	4th	112, small and feeble	Headach, delir. lividity of nose, lips, and extremities	5th day	4	do
Nov. 13	H. Chalmers	30	do	Servant		do	7th	112	Headach, suffused eyes	At admission elevat. & rough	30	Cured
Nov. 15	H. Russell	11	Carnegie st			do	10th	76	Frontal headach	None	10	do
Nov. 15	R. Russell					do			Headach	do	10	do
Nov. 19	W. Stewart	43	Stockbridge	Shoemaker	do	do	3d	84	Headach, cough, expect. pain of belly. general weakness	do	42	do
Nov. 22	J. M'Quarry	45	Cowgate	Plasterer		Cold	8th	Full	Frontal headach, deafness, delir. and jactitation, epigastric pain	Erroded at admission	8	Died
Nov. 23	T. Johnstone	40	Grassmarket	Quarryman	Regular	do	3d	112, full	Headach, cough, oppressed breathing, & pain of chest	Bright on adm. elevat. & rough	36	Cured
Nov. 24	A. Paterson	19	Lothianroad	Tailor		Contagion	5th	108, full	Frontal headach, epigast. pain and tension	Distinct on admis. elevated	14	do
Nov. 26	J. M'Quarry	16	Cowgate	Painter		do		96, full	Frontal headach, suffused eyes, epigast. tenderness	Faint at admis.	25	do

Nov. 26	J. Munro	37	Dalkeith	Maltster			8th	112	Headach, suffused eyes, cough, and jelly-like expectoration	Bright at admission	10	Died
Nov. 28	W. Murray	17	Fountain br.			Cold	6th	64	Headach, suffused eyes		33	Cured
Nov. 28	H. Johnstone	15	Grassmarket			Contagion	5th	100, full	do	None	31	do
Nov. 28	C. Chalmers	56	Canongate	Coachman	Spirit drink	do	6th	112, full	Headach, insensibility, short rapid breathing cough, epigast. pain	Vivid and gen.	2	Died
Nov. 29	J. Granger	36	Castle hill	Labourer		Cold	9th	104	Frontal headach, injected watery eyes, cough	Faint at admis.	31	Cured
Nov. 30	T. Trawell	40	Canongate	Labourer		Cold	Uncertain 8th to 14th	76	Languor, cough, and pain of chest	None	12	do.
Dec. 3	G. Moodie	35			Irregular			68, oppr. al. small, feeble	Frontal headach	do.	26	do.
Dec. 3	R. Cameron	27	High street	Painter		Contagion		84—96	Stupor, listlessness, headach, suffused eyes	Numerous at admission	27	do.
Dec. 3	J. Burns	45	L. Lawson's wynd	Labourer			8th	96, feeble	Headach, gen. uneasiness	Distinct admis.	13	do.
Dec. 8	W. Gibb	10	Crosscauseway				7th	104	Feebleness, epigast. pain	None	8	do.
Dec. 8	R. Henrie	16	Leith Walk	Printer		Cold		74	Headach, intol. of light, suffus. eyes, pain of chest	do.	4	do.
Dec. 10	F. M'Queen	55		Writer	do.			120	Cough, pain of chest, expectoration	do.		do.
Dec. 11	A. Douglas	23	Cowgate	Tailor			2d	96, feeble	Substernal pain, cough, and expectoration	do.	5	do.
Dec. 15	J. Campbell	49		Labourer	do.		8th	96, full	Frontal headach, sternal pain, cough, and expect.	do.	24	do.
Dec. 16	J. Sutherland	52		Chemical workman			2d	96	Headach, subsult. epig. pain, and sore throat	Faint on 9th day		Died of ulcer of stomach
Dec. 17	J. Herkins	18	do.	Labourer					Breathlessness, cough, expectorat. rheumatism	None	41	Cured
Dec. 25	J. Grieve	37	Cowgate	Mason	do.		5th	88	Frontal headach, spinal pain, suffused eyes	do.	16	do.

Date of admission.	Name.	Age.	Residence.	Occupation.	Habits.	Alleged cause.	Day of Disease	Pulse on admission.	Local symptoms.	Appearance of eruption.	Days in house.	Event.
) Dec. 29	T. Baker	45	West Port	Tailor			14th	92	Front. and epig. pain, gen. oppression & debil.	None		Cured
1 Dec. 29	Dan. Trainer	25		Policeman	Irregular		8th		Frontal headach, cough, breathlessness, & expct.	Dark coloured at admission	32	do.
2 Dec. 29	D. Figgin	5	West Port				5th	96	Headach, suffused eyes, and general uneasiness	None	18	do.
3 Dec. 30	J. Mullins	27	Leith Wynd	Shoemaker			6th	100, small	Front. headach, spinal pain, general languor	Vivid at admis.	24	do.
4	J. Campbell	9					3d	120	Cough, breathlessness, epig. pain, & restlessness	None		do.
37												
5 Jan. 3	J. Casey	37		Hawker				84	Breathlessness, cough, expectoration, headach	do.		do.
6 Jan. 5	J. O'Niel	21	Cowgate	Tailor			7th	96, full	Anorexia, languor, pains in the bones and joints	Large & vivid patches	25	do.
7 Jan. 6	J. Burns	15		Ironfounder			2d	80	Frontal headach, suffus. eyes, epig. pain, & disten.	None	14	do.
8 Jan. 7	J. Robertson	13	Low Calton	Labourer			4th	80	Headach, general uneasiness, umbilical pain	do.		do.
9 Jan. 7	Graham, jun.	16	Causewayside	Gardener			3d		Front. and gen. headach, suffus. eyes, gen. prost.	7th day, minut. spotted	19	do.
0 Jan. 8	J. M'Gavern	23	Stevenlaw's Close	Labourer	do		5th	100, oppressed	Frontal headach, confus. giddns. & gen. weakness	Vivid, crowded, & elevated	27	do.
1 Jan. 8	J. Graham	12	Canongate				5th	104 oppressed	Frontal pain, oppression, & approach. insensibility	Dark at admis.	4	Died
2 Jan. 8	F. M'Kenzie	19	Dixon's close				4th	92	Frontal pain, giddiness, faintness, epigastric pain, and general languor			
3 Jan. 9	A. Dow	23	St Leonards Lane	Coachmaker	Regular	Contagion	4th	96, full	Frontal headach, turbid eyes, cough, & expector.	6th day, elevat. and rough		Cured
4 Jan. 14	S. Dow	51	St Leonards	Carter	Drunkard	do.	4th	Not felt at wrist	Stupor, tremors, cold rigid extremities	General at admission	2	Died

Jan.	17	A. Robertson	50	Castle street	Porter	Dissipated	Cold & wet	7th	100, feeble	Headach, pain of chest, and epigastrium	None	1	Died
Jan.	18	H. Morrison	60	Libberton K.	Gardener	Sober		8th	112, small	Front. headach, tremors, debility, and two parotids	Distinct, at admis. not raised	6	do.
Jan.	18	J. Cochran	35	Craig's close	Stocking-maker	Regular	Contagion	7th	116, small	Frontal headach, cough, expectorat. sore throat, and aphonia	Vivid and elevated		Cured
Jan.	16	G. Borthwick	27	Last from Haddington	Hawker	Irregular		6th	112	Headach, delirium, typhomania, cough	Faint at admission	21	do.
Jan.	24	J. Mackenzie	22	Castle hill	Tailor	Sober	Cold	6th	108, small	Headach, epigastric pain, languor, and faintness	8th day, rough and elevated		do.
Jan.	24	J. Stewart	46	Brown street	Carter	do.		14th	88	Frontal headach, pain in limbs, swelled tongue, and diarrhœa	None		do.
Jan.	24	W. Christie	25	Grassmarket	Labourer			5th	112, feeble	No local complaint		16	do.
Jan.	25	A. Cox	28	Not fixed	Hawker		Cold fatigue	8th	112	Frontal headach, confusion, and uneasiness		26	
Jan.	26	J. Pritchard	35	Fleshmarket close	Shoemaker		Cold	21st	128	Frontal headach, suffused eyes, epig. pain, delirium	Like tares at admission	19	
Jan.	27	J. M'Gregor	27	Sher. Brae, Leith	Carter	do		8th	88, small & irregular	Cough, pain of chest, and rapid respiration	None		do.
Jan.	28	W. Picken	18	Toddrick's wynd	Plasterer			14th	108	Frontal headach, rapid breathing, cough	Faint at admission	20	do.
Jan.	31	T. Wright	24	West Port	Tailor			7th	104	Frontal headach, giddiness. œdema of scrotum	Dark at ad.		do.
Feb.	2	W. Logan	40	Andersons cl	Labourer		do.			Cough, breathlessness	None		do.
Feb.	2	Mackenzie	37	Jolly's entry	Bookbinder			9th	92	Furred tongue, weakness	do.		do.
Feb.	4	W. Macgregor	24	Leith Wynd	Shoemaker	Irregular		9th	116, small	Suffused eyes, cold extremities	Dark at admission	3	Died
Feb.	8	G. Philip	10	Hardwell cl.					112	Abdominal uneasiness, *stridor dentium*	None		Cured
Feb.	9	J. Ramsay	60	Causwayside	Labourer	Drunkard	do.	8th	92, feeble	Cough, pain of side	Covered	3	Died

Table II.—Fatal Cases.

No.	Name.	Age.		Parts most affected.	Cause.	Habits.	Days in House.	Fatal day.	Pulse at Adm.	Remarks.
1	W. Tierney	18	6th	Brain, throat, chest, & epigast.	Unknown	Unknown	7	13	84, feeble	
2	J. Hart	22	12th	Brain, stomach, and abdomen.		Dissipat.	2	14	116	
3	T. Grieve	40	14th	Brain and stomach					124, feeble	Insensible
4	J. Adamson	40	15th?	Brain and meninges. epigast.	Sleep. on ground	Irregular	3	18?	110	Meningitis
5	J. Welsh	31	4th	Brain and lungs	Cold & moisture		14	18	96	Pneumonia
6	A. Cameron	19	6th	Brain and intestines			2	8		
7	W. Robertson	20	6th	Brain and meninges	Contagion		6	12	108, full	
8	P. Clark	25	6th	Lungs and bronchial memb.	Cold	do	7		120, small	Pneumonia
9	J. Anderson	17	8th	Brain and belly	Contagion	Regular	14	22	76	
10	J. Tolby	22	3d	Pulmonic vesicles & substance	Cold	Dissipat.	6	3	112	Pneumonia
11	J. Napier	24	4th	Lungs and brain	Contagion	Ale-drink.	2	6	96, strong	Hepat. lung
12	D. Murphy	56	2d	Lungs	do	Irregular	30	32	80, variable	Gangrene of lung
13	A. Hodge	30	5th	Brain and abdomen	do	Regular	5	10	100, full	
14	H. Morrison	24	7th	Brain and parotid tumour	Cold		20	27	100	
15	T. Harris	38	7th	Brain and lungs	Contagion	Irregular	9	16	128, small	Pulmonary vomicæ
16	R. Ramsay	19	4th	Brain and belly	do	do	6	10	120	
17	Th. Ramsay	50		Brain and abdomen	do	do	9		120, small	
18	D. Morrison	25	7th	Brain			25	32	88, full	
19	J. Logan	54	10th	Brain and lungs		do	2½	13	80	
20	G. Russell	23	10th	do	do	do	6	16	132, small	
21	A. Montgomery	25	4th	do	do	do	4	8	112	
22	J. M'Quarry	45	8th	Brain	do		8	16	full	
23	Js. Munro	37	8th	Brain and bronchial membrane			10	18	112, feeble	
24	Cr. Chalmers	56	6th	Brain and lungs	do	do	2	8	112, insensible	
25	J. Sutherland	52	2d	Brain, lungs, and stomach			38	10	96	Ulcer of stomach
26	J. Graham	12	5th	Brain	do		4	8	104, small	Ulcer of colon
27	S. Dow	51	4th	do	do		2	6	Not felt at wrist	
28	A. Robertson	50	7th	Brain, lungs, and stomach	do		1	8	100. feeble	Softening of stomach
29	H. Morrison	60	8th	Brain and parotid tumours	Cold		6	14	112, small	Double parotid
30	W. Macgrigor	24	5th	Brain, lungs, and spleen	Drinking	Drunkard	3	8	116, small	Softening of spleen
31	Jos. Ramsay	60	8th	Brain, lungs, and heart	Contagion	do.	3	11	92, feeble	Pneumonia soft. spleen and diseased heart

I. It is generally maintained that typhous fever is a disease chiefly of cold seasons, and is much more prevalent in the winter than in the summer or autumnal months. This did not seem to be the case in the summer and autumn of 1836, during which fever was very abundant in the months of June, July, and August, in various localities in Edinburgh and its suburbs, and particularly so in Stockbridge, and various parts in the northern boundary of the city. Thus the tables show that cases came from various parts of Stockbridge, from Pitt Street, Leith Walk, and other well-ventilated situations, as well as from the crowded and densely inhabited abodes of the Canongate, the Cowgate, the Grassmarket, and the closes between the Cowgate and the High Street.

A few cases also came from various country districts, as Penicuick, Lasswade, Liberton, and similar situations, where there was no reason to believe, that there could be any deficiency of ventilation; and at a later period, various cases of unequivocal *Synochus* have appeared in other country localities, as Peebles, the occurrence of which is equally unfavourable to the notion of imperfect ventilation. These and similar facts lead to the conclusion, that the cause of typhous fever, whatever it be, is not so much under the influence of cold weather and confined air, or imperfect ventilation, as is commonly imagined. It must not be concealed, however, that, as the season was extremely wet, it is possible that the humidity of the soil, or the atmosphere, or both conjoined, may have had some influence in the production and diffused prevalence of the disease.

The tables show that a manifest increase in the prevalence of the fever took place during the harvest, not only among the Irish reapers, but among those of all sorts. But it was further observed, that the wet weather, and the practice of laying down on the ground when overheated, produced a greater number, both of febrile and of inflammatory affections. At this time, for instance, several cases presented either rheumatic symptoms complicating the fever, or pneumonic, bronchial, or peritoneal attacks; and in three cases, the pneumonic symptoms were so intense as to prove fatal; while in one, though the immediate symptoms of pneumonic inflammation were subdued by repeated blood-letting, general and local, antimonials, and the application of blisters, yet the presence of disease of the kidney induced general dropsy, which proved fatal above three months after, on the 12th of January 1837. (Arnott.)

Besides various cases presenting symptoms of bronchial irritation and deranged secretion so moderate as not to require particular remedies, symptoms of bronchial irritation and inflammation, either tubular or vesicular or both, and symptoms of pneumonic inflammation took place in the following cases.

Table III. Cases with Disorder of the Organs of Respiration.

No.	Date of admission.	Patient's names.	Age.	Form of the disease.	Event.
1	Aug. 1	H. Webster	13	Tubular *bronchitis*	Cured
2	Aug. 16	J. Mackinnes.	23	Tubulo-vesicular *bronchitis*	do
3*	Sept. 6	J. Welsh	31	*Bronchitis* and *pneumonia*	Died
4*	Sept. 18	H. Wood	18	Vesicular *bronchitis*	Cured
5*	Sept. 20	J. Arnott	27	*Pneumonia*	Died
6*	Sept. 24	P. Clark	25	do	do
7*	Sept. 25	J. Collins	20	Tubulo-vesicular *bronchitis*	Cured
8	Oct. 1	J. Gorman	12	Tubular *bronchitis*	do
9*	Oct. 7	J. Tolby	22	*Pneumonia*	Died
10	Oct. 8	A. Lauder	35	Tubular *bronchitis*	Cured
11	Oct. 10	J. Napier	24	Hepatization of lung	Died
12	Oct. 18	D. Murphy	56	Gangrene of lung	do
13	Nov. 5	J. Logan	54	Tubular *bronchitis*	do
14	Nov. 20	J. Campbell	11	Tubulo-vesicular *bronchitis*	Cured
15	Nov. 26	J. Monro	37	Tub. *broach.* & heart disease	Died
16	Nov. 28	C. Chalmers	56	*Bronchitis*	do
17*	Dec. 10	J. Macqueen	55	*Bronchitis*	Cured
18*	Dec. 15	Js. Campbell	49	Tubular *Bronchitis*	do
19		J. Campbell	9	*Bronchitis*	do
20	Dec. 29	D. Trainer	25	Tubular *Bronchitis*	do
21*	Jan. 3	J. Casey	37	Tubulo-vesicular *bronchitis*	do
22	Jan. 17	A. Robertson	50	Vesic. *bronchitis* & *pneumon.*	Died
23*	Jan. 27	Jn. Macgregor	27	*Pneumonia*	Cured
24	Jan. 28	W. Picken	18	Tubulo-vesicular *bronchitis*	do
25	Feb. 4	W. Macgregor	24	Tubular *bronchitis*	Died
26	Feb. 9	J. Ramsay	50	Tub. bronch.; diseased heart	do

Of these cases, it cannot be doubted that at least the ten marked with the asterisk were cases of primary or idiopathic inflammation of the bronchial tubes or lungs, while in the remaining sixteen, the symptoms were such as to justify the conclusion, that they were cases in which the symptoms of fever had been complicated with the affection of the respiratory organs. In the former class of cases, all the febrile symptoms under which the patients laboured, were such as evidently depended on the local disorder; and when this was subdued or alleviated by appropriate remedial measures, these febrile symptoms entirely disappeared. In the latter class of cases it was somewhat different. The history of the approach of the disease led to the opinion, that the febrile symptoms appeared first, and that the bronchial affection, tubular or vesicular, ensued afterwards. In several of these, also, as 8, 10, 12, 15, 16, 17, 22, 24, 25, and 26, the skin presented the petechial eruption, which has generally been regarded with justice as characteristic of the presence of typhous fever.

These cases I have mentioned in a general manner at this part, chiefly to give the reader some idea of the nature and predominant character of the fever during the time specified.

Though the majority of cases, amounting to 106, certainly presented the symptoms of the usual affection of the brain and spinal chord and their envelopes, either alone, or with more or less affection of the epigastric and umbilical organs, yet there was also a marked and palpable tendency to disorder of the organs of respiration and their mucous surfaces. I shall probably take a subsequent opportunity to show, that in all cases of fever there is strong reason to believe, that in the mucous surfaces of the respiratory organs there takes place a peculiar morbid state, which has the effect of impeding respiration, preventing the requisite changes from being effected in the blood, and thereby either transmitting to the different organs blood not sufficiently aerated, and consequently poisonous, or not receiving from them blood which is no longer capable of maintaining the energy of each. At present, I shall merely observe, that, besides the 26 cases already specified as examples of distinct and unequivocal disorder of the organs of respiration, this tendency was evinced in a manner not less distinct, though perhaps with different effects, in the cases of Andrew Mack, Donald Murphy, George Russell, and Alexander Montgomery. Of the case of Murphy, I shall afterwards speak as a remarkable and interesting example of gangrene of the lungs. The case of Russell, who was a plethoric stout young man of 23, a brewer's servant, admitted on the tenth day of the disease, was remarkable for presenting the most intense symptoms of impeded circulation. At admission the pulse was 132, small, feeble, and oppressed; the countenance was dingy, with livescence of the cheeks, lips, and nose; the eyes were collapsed in the orbits; the extremities were cold; and he seemed unable to comprehend questions, or give any articulate answer. The pulse fell successively to 100, 88, 64, 56, 72, and was very irregular; but the stupor and inability to articulate continued, with increasing restlessness and jactitation; the voice was feeble, husky, and whispering, similar to that of intense cholera, with the eyes shrunk in the orbits; the hands and feet continued cold and bluish; and, the respiration becoming hurried and irregular, but feeble, death took place on the sixth day after admission, and on the sixteenth day of the disease.

In the case of Alexander Montgomery, aged 25, admitted on the fifth day of the disease, similar livescence took place in the nose, lips, and extremities, with great coldness of the latter; the respiration rose to 48 in the minute, while the pulse at the heart was 104, but could not be felt at the wrist; and death took place on the fourth day after admission, or the ninth day of the disease.

In neither of the two cases now specified could we obtain permission to inspect the body; but the appearances found in se-

veral of the cases inspected may be useful in enabling us to form some idea of the state of the different organs.

Swellings at one or both angles of the lower jaw, usually denominated parotid tumours, have been much more frequent this season than at any other period. These tumours took place in five cases, and in general after the characteristic febrile symptoms had begun to subside. In one case the tumour proceeded to suppuration, and an incision required to be made in order to evacuate the matter formed. In all these cases, the swelling at the angle of the jaw rose very suddenly without any premonitory indication of its approach; and after a feeling of stiffness, pain, and difficult mobility of the jaw, the tumour appeared, and in the course of a few hours, or a single night, attained a large size, and formed a hard prominent diffuse painful swelling, with tension of the skin, at or beneath the angle of the jaw. In one case, the appearance of these tumours at each angle of the jaw was speedily followed by the disappearance of the stupor and restlessness, the tongue parted with its fur and became clean, the pulse became slower and less frequent, and softer and fuller, and the other febrile symptoms disappeared. In one case, on the other hand, in which these tumours appeared suddenly, and attained a large size, impeding deglutition, and causing secondary febrile disorder, death took place suddenly and unexpectedly on the first day thereafter. In another case, in which these swellings appeared, while the febrile symptoms were still present, their appearance was accompanied by no alleviation of the symptoms, and seemed rather to increase the stupor, listlessness, and insensibility, and death took place on the third day after their appearance. It was unfortunate that in neither of these cases in which the disease terminated fatally, could permission to inspect the body be obtained.

In a fifth case, in which a large swelling, hard and painful, took place at the left angle of the jaw, the febrile symptoms, which had been tedious and protracted, with various oscillations or periods of abatement and exacerbation, had entirely disappeared. The pulse had fallen to 76 and become soft, regular, and free from oppression; the tongue had become clean; the skin moist; the countenance had acquired a clear natural transparent colour; and the patient was walking about the ward. On the 22d day after admission, (February 1,) and the third day after the convalescent state was established, a painful hard swelling appeared at the left angle of the lower jaw, and quickly attained a large size, with quick hard pulse, and some difficulty of deglutition. Leeches were first applied; then purgatives, alternated with antimonials, were administered; next a bloodletting was drawn from the arm; and leeches in considerable

number were several times applied to the tumour. These measures, and especially the general blood-letting, were followed with som ediminution in the size and hardness of the tumour. But they did not prevent the extension of the swelling, and the formation of purulent matter. An incision was accordingly made through the softest and most prominent part of the tumour, on the 7th of February, and a good deal of purulent matter was discharged and continued to escape for several days. Under this management, the swelling slowly subsided, and the hardness abated so much, that on the 14th February, the patient felt no inconvenience or difficulty in the motions of the head and throat.

It may not be improper to observe, that though the tumours now mentioned are generally called parotids or parotid buboes, they have almost nothing to do with the gland from which they are so named. They are seated exclusively in the subcutaneous adipose tissue, surrounding the muscles at and below the angle of the jaw; and it is the inflammatory state of this tissue that causes the sudden appearance and rapid progress of the swelling, and its obstinate resistance to remedies, whether general or local. The adipose tissue of that region is abundant and lax, and has extensive and multiplied connections with the parts in the throat and face; and like adipose tissue in other regions, it either does not readily undergo healthy suppurative inflammation, or does so slowly. From being covered also by the *platysma myoides*, and dipping between the sternomastoid and digastric muscles, it is prevented from expanding itself so readily as in other regions, and hence its tumefaction gives rise to great and unusual pain, which either impedes much the motions of the head and throat, especially those of deglutition, or prevents the latter from being performed without very considerable difficulty. It appeared even in two cases in which the swelling affected both sides of the throat, by impeding deglutition, and inspiration and expiration, to be the cause of the fatal event.

The eruption which takes place in fever, was found in 79 among 169 cases. It never appeared at an earlier period than the fourth day; unless in one case, Murphy; and in only two cases did it appear on the tenth day. It has in general consisted of a mottled eruption, more or less closely set, of minute spots, not exactly circular, but often elliptical, most distinct on the back, and less so on the anterior surface of the trunk, and more manifest and crowded on the surface of the trunk, than on that of the extremities. The colour of these spots varied from a faint red, to a deeper and more vivid red, but generally of a dirty colour; and in several of the worst cases in which the

brain was much oppressed, with suffused watery eyes, and a dingy colour of the countenance approaching to livescent, the colour of the spots was brownish, and slightly livid. This colour could scarcely be made to disappear on pressure; or if it did, the evanescence was only instantaneous, and the mottling immediately returned.

The margins of these spots were never well or distinctly defined, and they were in general ragged and irregular, whatever was the size of the spots. Their magnitude was various. In some instances they were extremely small, so as to give the skin the appearance of minute but extensive mottling. In other instances, they were as large as split tares, especially on the back.

In the great number of cases no perceptible elevation could be recognized. In 10 cases, however, or nearly one-eighth of the whole in which the eruption took place, it was accompanied with sensible elevation felt by the finger, and some degree of roughening.

In the disappearance of this eruption, it was observed that the colour became less intense, and that it gradually faded away, the parts which it occupied becoming much like the rest of the skin. It has been stated that it terminates in desquamation of the cuticle. But if it do, this must have been so gradual as not to be perceptible. The surface of the skin continued dry, and the tongue continued furred for several days after its evanescence; and a gradual detrition of the cuticle, similar to that which takes place during health, may have been proceeding. But no exfoliation in distinct particles was recognized.

With regard to the connection of this eruption with the characters of the fever, or the affection of any particular internal organ, it could not be perceived that it either alleviated or aggravated the general or the local symptoms, nor did its presence form any contraindication to the administration of any of the remedies employed. The restlessness and *typhomania* were certainly not abated; nor were they aggravated by the appearance of the petechial eruption.

The time of its duration it was difficult to ascertain, as it was in the majority of cases impracticable to determine the time at which it appeared. But in those cases in which the eruption took place after admission, it generally disappeared in the space of from seven to eight days.

The favourable termination of the disease, or the crisis, as it has been named, was in no case sudden or well marked. In general its approach was indicated by greater tendency to sleep during the night, and by the pulse falling from 10 to 15 beats in the course of the following morning. In several instances, however, after a manifest diminution in the frequency of the

pulse in this manner, it again became more frequent in the course of a day or two, and continued so till the full operation of laxative medicine had taken place.

It is important also to observe, that in about 25 or 26 cases, the pulse either was never very rapid, *i. e.* not above 80 in the minute, or fell from 96 or 112, to 80 or 84, or even to 70, yet the tongue continued thickly furred, and the skin continued dry, harsh, and imperspirable for several days afterwards; and only after the repeated use of laxative medicine, and the continuance of low diet for several days, did the tongue part with its fur, and the skin become moist. In this class of cases the febrile process seems to have pre-eminently, and for the longest time, affected the mucous surface of the alimentary canal; or its irritative cause continued to act on the secreting surface of the mucous membrane of the alimentary canal, after it had ceased to operate on the heart and blood.

Before closing this part of the Report, it is requisite to give certain explanations with regard to some of the cases which appear in the tables, and which were not examples of idiopathic fever.

The case, No. 13, of John Davie, had been sent from another ward as a case of fever. Upon attentive examination, however, it appeared that the febrile symptoms were dependent on peritoneal inflammation, not at first very well marked. The patient had no pain of the head, tenderness of the surface, or sleeplessness, nor was the strength impaired, or the physiognomy altered. He had, however, pain in the left hypochondriac and epigastric regions, aggravated by pressure and deep inspiration, occasional vomiting, constipated bowels, furred tongue, dry skin, and the pulse at 80. A number of leeches were twice applied to the pained part of the belly, and cathartic medicine was given with the effect of relieving the epigastric pain, and reducing the pulse to 72. After this he continued free from complaint for two days. During the night succeeding the second day, however, he was attacked with pain in the umbilical and hypogastric regions; and the next day this was found to be aggravated by pressure and inspiration, with some resistance of the muscles, dulness on percussion, and thoracic respiration. The pulse was 84, tense and contracted, or wiry. For these symptoms blood-letting, general and local, followed by the use of opiates and *enemata*, were employed, until after five days, all the urgent symptoms were relieved, the skin became moist, the respiration more abdominal, and the pulse fell to 60 and 66.

The case, No. 112, of George Moodie, was sent from the Surgical Hospital as one of fever; and the leading symptoms, viz.

intense frontal headach, furred tongue, and dry skin, with much thirst, were calculated to give it this appearance. I knew, however, that this man had suffered a violent blow on the head, for the effects of which he had been in the surgical wards in the year 1818, and that the inflammatory symptoms which then ensued, had left him hemiplegic on the right side, and with considerable loss of memory, and slow, imperfect articulation. It appeared to me that the frontal headach was wholly dependent on meningeal inflammation. Large general blood-letting was accordingly directed to be employed, and was repeated till 52 ounces were drawn in two days and a half, with cold applications to the shaven scalp, and the frequent use of active cathartics; and under these means, on the fourth day after admission, the pain of the head was entirely gone, the pulse fell from 84 to 60, and became soft, the tongue became moist, the speech more articulate, and the appetite returned.

I think it cannot be doubted, that in this case the disposition to meningeal inflammation left by the injury of the head reproduced the disease in a slight degree, after the lapse of many years.

No. 82, the case of A. O'Brien, demands in one respect some particular notice. This man, an Irish reaper, of 26, admitted on the 30th September, went through the usual symptoms of fever with affection of the head and epigastric region, without any remarkable circumstance, except the formation of a bloody boil *(epinyctis)* on the right leg, so that he was convalescent on the 17th of October, and had been allowed common diet. On the 18th, however, without any known cause, he was attacked with a fit of cold shivering, succeeded by heat and sweating, but without local pain; and had a similar fit with sickness, foul tongue, and quick pulse on the 21st. For the first a laxative; for the second an emetic succeeded by an anodyne, and castor oil was ordered; and on the 22d, the surface was still cold, pale and clammy, and the features were shrunk and contracted. Repeated careful examination of the chest and abdomen could detect nothing wrong in any of the organs of these cavities; but the tongue was still furred, and the pulse varied from 88 to 92. Sulphate of quinine and valerian with a little aromatic confection was then given, while the bowels were acted on by calomel and extract of colocynth, and the saline infusion of senna, according to the state of the tongue. The dose of sulphate of quinine was afterwards increased from one to three grains three times daily. Under this treatment, persevered in for two weeks, the shivering fits gradually disappeared, the pulse fell steadily to 76 and 84, and he slowly regained strength.

At a subsequent period, in November, the feet became œdematous, with hot dry skin, and afterwards the œdema became general, with scanty but not albuminous urine. Leeches were at this time applied over the region of the kidneys, and Dover's powder was exhibited at bed-time, with a cathartic in the morning. The urine then became abundant, with disappearance of the œdema; and after a tedious convalescence, the patient went out well on the 30th of November, having been sixty days in the Hospital.

This seems to have been a case of slight and incipient disease of the kidneys.

II. Among the cases which terminated fatally, inspections were obtained in thirteen. As these afforded several important points of instruction, pathological and therapeutic, I shall only give a short abstract of each.

Case 1.—John Adamson, aged 40, collar-maker, and resident in Gifford Park, was admitted on the 29th August 1836, with violent pain in the frontal region, much thirst, hot dry skin, general tremors of the whole body, and the pulse at 110, rather sharp. The countenance was sunk and oppressed, the complexion rather dingy, the eye heavy, dull, and languid. The tongue was covered with a thin whitish fur, the bowels were confined, and the general strength was much impaired. It was stated that he had been ill upwards of a fortnight, that he was addicted to the use of spirits, and that he had been in East Lothian, where he had lain on the ground five nights in the open air. He had no delirium, nor any eruption on the skin.

Twelve leeches were applied to the forehead and temples, and the bowels were freely opened by means of calomel and jalap, succeeded by the saline infusion of senna. Next day (30th August) the pain of the head was a little abated; but the pulse was 104, tense and sharp; the eyes were oppressed, and dull; and the temporal arteries were much distended; and the epigastric and umbilical region was somewhat painful and distended, and some mucous and serous fluid had been vomited.

The scalp was ordered to be shaved, six leeches to be applied to each temple, the effervescing draught was directed to be given, and a dose of calomel and jalap, followed by three of the colocynth pills.

These remedies were administered as directed, but without being followed by any favourable change in the symptoms. He continued in a state of great depression and weakness, with quick, hard, small pulse, tremors of the whole body, and coldness of the surface, yet without delirium or insensibility, and died about four on the morning of the 31st, forty hours after his admission.

Upon inspecting the head on the 2d of August, a considerable quantity of opaque, yellowish firm lymph was found effused, both on the free surface of the arachnoid membrane and into the subarachnoid tissue, along the sides of the median fissure of the hemispheres, both anteriorly, superiorly, and backwards, to the posterior end of the hemispheres. The *pia mater* and arachnoid membrane were also thickened, firm, and opaque, and yellowish lymph was observed on the subarachnoid tissue, over the *sulci*, near the fissure, and more remotely a quantity of serous fluid.

A small quantity of serous fluid, rather muddy, was found within the lateral ventricles.

The substance of the brain was a little vascular. At the base of the brain from the junction of the optic nerves, backwards to the angle between the crura and annular protuberance, a thick layer of firm straw-yellow lymph was found covering the arachnoid membrane, and completely concealing the subjacent parts. The *pia mater* and arachnoid membrane were also firm and thick, and the intermediate filamentous tissue was filled with lymph.

The *parietes* of the ventricles were softened; the substance of the fornix and septum was much broken and softened; and the foramen of Monro was effaced.

Chest.—The lungs were sound.

The heart was soft and flabby; the *parietes* of the ventricles thinned and softened, and the substance of a pale buff-colour. The lining membrane was tinged with blood.

Particular circumstances prevented complete examination of the abdominal viscera; but on a superficial view they appeared to be healthy.

Epicrisis.—In this case, it is remarkable that there was no delirium or any other disorder of the judgment, though the evidence of meningeal inflammation after death was as distinct and unequivocal as could be required. The sensibility of the patient was certainly impaired, and I am not sure whether his recollection also was not a little disordered; for though he stated that he had been unwell for fourteen days, there was strong reason to believe, that the commencement of his illness was much more recent.

That the disease was not idiopathic fever, is rendered probable if not certain, by the total absence of eruption on the skin, and more especially by the want of delirium, and by the tension and rapidity of the pulse.

The symptom of epigastric and umbilical tension and tenderness with vomiting, might either take place in fever, or in *menin-*

gitis, though it is much more frequent in the latter disease than in the former.

Had this man applied a day or two earlier, and had the frontal headach and tense pulse been equally well marked, I should have directed him to be largely blooded from the arm; as this, with the use of cold to the head and cathartics, afforded the only hope of alleviating the symptoms and averting the fatal termination of the disease. But when he appeared in the waiting-room, he seemed to be so feeble, his eye and look so oppressed and languid, and his general strength was so much impaired, with incessant muscular tremors, that he appeared to have but a few hours to live. This remedy was therefore believed inadmissible, and calculated more to impair the strength, than to subdue a disease evidently too far gone. The inspection showed that at that period the time for active measures had elapsed, as it was impossible to imagine that the lymph had been effused during the forty hours that elapsed between admission and death.

The absence of coma at the close, as well as delirium at the commencement, forms a peculiar feature in the symptoms of this case, and tends to derange much, if not to overturn entirely, many of the received notions regarding the nature and degree of the symptoms, believed to be connected with the presence of *meningitis*. The case shows that a very serious lesion of the cerebral membranes may not only exist, but may give rise to the formation of morbid products, not only without delirium at the commencement, and coma at the close of the disease, or convulsive motions throughout its course, but without any other evident symptoms except those of great feebleness and unsteadiness in the voluntary motions, and the general aspect of languor and oppression so common in febrile disorders.

Case 2. John Welsh, aged 31, a native of Donegal, but recently residing at Liberton, as a labouring servant, was admitted on the 6th September, with an oppressed dingy aspect of the countenance, a dull heavy eye, a yellow furred tongue, an oppressed pulse at 96, dry hot skin, and some oppression in the respiration, but without pain in the chest. The skin was free from eruption, and the epigastric and umbilical region from pain or tension.

For these symptoms cathartic medicines were ordered, with some benefit; and the patient was easier next day. On the 10th, however, while the pulse was still at 100, with some degree of stupor, there was cough with expectoration of viscid jelly-like mucus. On the 12th, percussion elicited a good sound, except at the lower part of the right side, where vesicular respiration was extinct, and one part of the left side of the chest, where the crepitous rattle was heard, while the respiration was 48 in the

minute. The patient made, however, no complaint of pain in any part of the chest or side. A large blister was applied to the left side, and six grains of tartrate of antimony in two ounces of water, were directed to be immediately given.

This was followed by slight retching and considerable relief to the labour and oppression of the respiratory motions, which again fell to 32, while the pulse was reduced to 90; and for two days the symptoms were stationary. On the 15th, however, the general weakness seemed so considerable, that the gentleman who had charge thought it necessary to give six ounces of wine, and two of spirits. Next day (the 16th,) after little sleep, the countenance was dingy and livescent, the lips livid, and the tongue was covered with a moist dark leaden-coloured fur. The left eye was suffused, and both spasmodically and involuntarily turned upwards. The urine was extremely scantily, and the bowels had been sparingly moved. The pulse was again 100, of good strength. The wine and spirits were stopped; and frequent small doses of tincture of *digitalis* were ordered, with a blister to the right side, and sinapisms to the legs.

Next day the pulse had fallen to 84, but was feeble; the respiration was 32, performed with some labour, and feebly, and the urine had been voided pretty freely. These symptoms, however, instead of being indications of improvement, were the marks of the relaxation of approaching dissolution. The lower jaw was depressed and relaxed, and the extremities were cold. All medicines were given up; and death took place next morning.

On inspecting the chest, old firm adhesions were found connecting the right *pleura pulmonalis* and *pleura costalis*. The right lung was solidified and uncrepitating in its inferior lobe, and above the bronchial tubes were filled with jelly-like viscid mucus, and the bronchial membrane was reddened. Much frothy serum escaped from the cut lung, both above and below. On the left side, part was indurated, and parts were soft and lacerable, and extensively penetrated by foul ash-coloured bloody purulent fluid. The bronchial tubes above were filled with more fluid dense mucus, and the membrane was red, rough, and embrowned.

The liver was much indurated. Particular circumstances prevented full examination of the other abdominal viscera, and of the head.

Epicrisis.—In this case the absence of all appearance of eruption, and the circumstance that the individual had not been exposed to any known source of contagion, were favourable to the idea, that the disease had been from the commencement an attack of pneumonia supervening on bronchial disorder. The listlessness, languor, and approach to stupor, by reason of which

the patient could give no distinct account either of his own sensations, or of the origin and course of his disease, might arise from the impeded circulation through the head, induced by the previous disordered and interrupted state of respiration, and the motion of the blood through the pulmonary artery. The disease had never through any part of its course presented an open or distinct character; and from the period of admission to that of death, it proceeded in an insidious manner, smouldering in the lungs, yet with the external signs of a disease of great debility and depression. At no time subsequent to admission was it possible to recognize any indication for the use of active antiphlogistic measures; and when it was manifest by auscultation that the substance of the lungs was inflamed, it was at the same evident that general blood-letting was at that stage of the disease inadmissible, and incapable of averting the disorganization of the organs. On this account the remedial measures were restricted to the use of antimony in the large contra-stimulant dose, and the application of blisters.

Had the usual eruption of typhous fever been present in this case, I should not have hesitated to regard the disease as an instance of typhoid *pneumonia;* and perhaps, by many of those who have described this disease, it would have been without scruple referred to the same head. To this view, however, the absence of the petechial eruption was rather an objection, and perhaps it is more rational to view it as a case of latent pneumonia supervening on bronchitis, and gradually allowed to proceed to morbid effusion, without the seasonable use of appropriate remedies. Daily experience, both in private and hospital practice, shows that pneumonia may be developed, and pass in this insidious manner through all its stages, until the lung is extensively hepatized, yet without other inconvenience on the part of the patient, except cough and occasional breathlessness, and of the latter very little, until the advanced degree of the disorganized state of the lung of itself terminates life, or the supervention of some acute disorder concurs with this disorganization to produce the same issue. Of this the two following cases afford good examples.

Case 3. Andrew Jansen a Danish seaman, was brought from a Danish vessel at Fisherrow to the Royal Infirmary, on the 16th June, previous to the period of my attendance, labouring under febrile symptoms, with substernal pain, clean tongue, pulse at 84, and with slight cough, but easy respiration When I first saw him at the end of June, the pulse was never below 112, often 120, the tongue was furred, the strength impaired, and he had shivering during the day, and sweatings during the night, but without cough, difficult breathing, or expectoration. He was tak-

ing sulphate of quinine; and I did not think it proper at once to change the treatment, under which he was said to have been improving. On the 15th of July, he had no complaint, was importunate for animal food, though the pulse was 120, and the tongue was still furred. He was accordingly allowed a little animal food; but was at the same time ordered a dose of Dover's powder at bed-time, and the saline infusion of senna in the morning.

On the 18th the pulse was at 108; but the sonorous *rhonchus* and sibilous wheeze were heard over the anterior surface of both sides of the chest, with bronchial respiration over the right; and the right side was behind and at its under part dull on percussion below. He also admitted that he coughed during the night. Ten ounces of blood were directed to be taken by cupping from the interscapular space; a blister was ordered over the anterior part of the right side of the chest, and a mixture, consisting of syrup of squills, and solution of muriate of morphia, was directed to be given. The cupping was not performed in consequence of the accession of a fit, partaking partly of the character of fainting and convulsion. The stethoscopic signs continued the same, with moist mucous rattle in the centre of the right side, and the crepitous rattle in some parts below. Leeches were applied; minute doses of ipecacuan with hyoscyamus were given; the bowels were regulated by laxatives; and he was confined to diet of milk and fruit. The rattles were less intense, and the cough underwent abatement; but the pulse continued as rapid as ever; frequent sweatings took place; the countenance assumed the waxy yellow tint of organic disease; and death took place on the 30th of July 1836.

Upon inspection of the body, the whole of the right lung, and especially the two lower lobes, were completely solidified and void of crepitousness and elasticity; and upon dividing them, foul, puriform, opaque blood-stained serum flowed abundantly from the cut surfaces. It was then seen that the whole substance of the lung was in a state of red and gray hepatization; granular, solid and resisting, and portions sunk in water. The bronchial tubes contained a good deal of opaque mucus; and the mucous membrane was reddened and roughened. The left lung was crepitating and of natural elasticity anteriorly; but behind and at its inferior part there was considerable red, soft, pulpy, solidification, not granular as in the right, but effusing much bloody frothy serum. The bronchial tubes also contained viscid jelly-like mucus, and the bronchial membrane was embrowned.

Some serous fluid was contained in the cavity of the pleura on both sides.

The pericardium contained about six drachms of serous fluid.

The right auricle and ventricle were much enlarged and

distended with clots of blood; and the ventricle was rather hypertrophied. The left was empty, and not particularly changed; the substance of the heart, however, was pale, rather soft and lacerable, and its fibres had a light orange tint, instead of the usual red colour.

In this case it is most probable that the right lung had become inflamed and indurated previous to the time when the patient was brought to the house. There was all along a want of acute symptoms, or much embarrassment in breathing, to lead the attendant physician to suspect a lesion of the lungs; and it was only after careful examination by means of the stethoscope that the morbid condition of the right lung was detected. At this time, however, the disease had evidently made too great progress to admit of the employment of general blood-letting; and local antiphlogistic remedies chiefly were indicated.

It is not unimportant to observe, that, from the man being a Dane, and not understanding a word of English, it was difficult to procure from him any useful information regarding the history and origin of his complaints, or the nature of his actual sensations when in the hospital.

A case of which I can speak in terms more undoubted is the following.

Case 4.—James Napier, a bloated young man of 24, resident in the High Street, but employed as a servant in a large brewery, where he had free access to malt liquors of the strongest quality, had been complaining of bad cough for fully three months previous to October. On the 6th of that month, in moving some beer casks, he had received a severe hurt in the left iliac region; and in the course of the same evening he felt in the part much pain, with general uneasiness, and considerable thirst, which he attempted, though ineffectually, to quench by copious draughts of rather strong malt liquor. These symptoms had proceeded in much the same tenor till the 10th, when one of his fellow workmen went with him to the Infirmary for advice. At this time he was rather confused, spoke incoherently, and after being sent to the ward, became ill humoured, and refused to remain, chiefly because he had heard directions given that he should lose some blood. He returned, however, in the course of the same evening, and was still more confused and incoherent, with strong full pulse at 96. He complained, further, distinctly of pain in the left iliac region, thirst, headach, and some pain in the chest. The eyes were suffused and injected; and the face bloated and flushed. The respiration was hurried, with slight cough, but without any expectoration having been seen. The tongue was

covered with a loose viscid fur, and the skin was partially moist. The violence and restlessness rendered auscultation impracticable.

Blood was drawn immediately from the arm to the extent of twenty-five ounces; six grains of calomel with twelve of jalap were given, followed by the saline infusion of senna; and an ounce of the antimonial solution was ordered every hour.

The blood was very much buffed and even cupped; but he had become so violent, that it was found requisite to restrain him by means of the strait-jacket. He had enjoyed no sleep, but continued to speak incessantly, with great incoherence and confusion. The eyes were red and injected; the face was flushed; and the pulse was 100, and sharp. He was still violent, and resisted every attempt to ascertain the state of the organs of respiration.

Twenty ounces of blood were taken from the arm; and six grains of tartrate of antimony in two ounces of water were administered, but without producing vomiting or purging; and in the course of two hours he became much calmer; and about half-past five, after allowing to the nurse that he felt much better, he immediately fell backwards in bed and ceased to breathe.

Inspection 36 hours after death.—There was little or no serous fluid effused in the subarachnoid tissue, but the surface was slightly opaque and dry. A considerable quantity of serous fluid within the ventricles distended these cavities to a great degree. The intermediate *septum* was stretched and softened; the *fornix* was torn upwards and softened; the walls of the ventricles were soft and pulpy; and the vessels lining them were large and numerous, and much distended with dark-coloured blood.

The *pleura* of the right lung adhered firmly and generally to the costal *pleura*. The substance of the right lung was soft, uncrepitating, and inelastic; behind and below it was red, congested, and throughout in various points lacerable. When divided by the knife much sanguinolent frothy serum escaped from the incised surfaces.

In the left lung the upper lobe was red, congested, and solidified. The lower lobe was much less red, but firm, uncrepitating in several points, slightly granular, and in others it was softened from infiltration of reddish yellow opaque fluid, which escaped copiously from the cut surfaces. Portions of the lung in the centre of the lower lobe and near its lower margin were solid, and sunk in water.

Between the left pulmonary and costal pleura were a few adhesions, and in the cavity some serum with flakes of lymph.

The bronchial tubes in both lungs contained viscid opaque mucus, and the membrane was red, rough, and embrowned.

The heart was healthy.

The liver was larger than usual, of a pale yellow colour, but not greasy to the knife.

Epicrisis.—In this case the left lung was in a more advanced state of disease than the right. Some portions presented the incipient gray granular deposit; others presented softened portions, which seemed to be a more advanced stage still of the disorganising process. These changes were remote effects of the inflammatory process attacking the substance of the lung, and doubtless occupied the space of several weeks or months. The changes in the right lung were indicative of pneumonia in a less advanced stage, and of more recent date.

This case might give rise to two questions. The first is, were the symptoms of deranged cerebral action those of fever, of *meningitis*, or of *delirium tremens?* The appearances found in the brain after death are such as have been observed in the bodies of those cut off by either of these diseases. The central softening is certainly more usually and more constantly an effect of *meningitis*, affecting especially the choroid plexus, than of fever, though it is observed to take place also in the latter disorder. It may also be argued in favour of the idea, that the nervous symptoms depended on *meningitis* rather than fever, that there was no petechial eruption; but to this it must be answered, that death took place before the eruption had time to appear; and in some cases of fever no eruption is perceptible. The only argument in favour of the case being one of *delirium tremens*, consists in the fact that the individual was habitually addicted to the use of fermented liquors, and probably took spirits at the same time, and that he had kept himself for a considerable time in a state of constant excitement by their use. It must be remarked, however, in opposition to this, that though there was *delirium*, no spectral illusions took place, nor did the patient present throughout any tremulousness or agitation in the muscular motions.

It may become a second question, if the symptoms depended either on fever or *meningitis*, whether they were not aggravated by the previous pulmonary lesion? All that can be said on this head is, that the extensive hepatization of the left lung, especially with the considerable softening of the right, evidently added to the severity of the acute symptoms, and accelerated the approach of the fatal event.

Case 5.—Archibald Hodge, aged 30, butcher, resident in Stockbridge, was admitted on the 19th October on the fifth day of fever, with frontal headach, flushed face, suffused turbid eyes,

brown-furred tongue, much thirst, and considerable tenderness in the epigastric and umbilical regions, which were intolerant of pressure. The usual mottled eruption appeared on the sixth day of the disease on the surface of the trunk and extremities; delirium ensued in the night of the seventh, and was accompanied with *typhomania (coma vigil* of Willis) during that of the eighth; and coma supervening on the evening of the ninth, terminated in death next morning at seven (24th October,) the tenth day of the disease.

The remedies employed were cathartics, antimonials, bleeding from the temples by means of leeches, cold to the shaven scalp, the cold affusion to the head, a blister to the occipito-cervical region, and fomentation of the lower extremities with warm water.

Inspection disclosed the following appearances.—A considerable quantity of serum was effused into the subarachnoid filamentous tissue. The vessels of the *pia mater* were much distended with fluid blood; the vertebral, basilar, and internal carotid arteries and their branches were also distended with dark-coloured semifluid uncoagulated blood; and the longitudinal sinus, though empty anteriorly and superiorly, contained at its posterior end a considerable quantity of dark-coloured grumous blood, which was also sound in the lateral sinuses. The substance of the brain presented numerous black streaks and points; and the vessels of the choroid plexus were much distended. Little fluid, however, was found within the ventricles.

The lungs presented externally a healthy appearance; but the bronchial tubes were filled with a good deal of viscid jelly-like mucus.

The liver was triangular in shape, the left lobe being not larger than a walnut, flattened, and imitating the shape of the human patella. The substance of the organ was injected, friable and indurated.

The mucous membrane of the stomach was of a slate-gray colour, presented mammillated patches, opaque, and somewhat tough. The *rugae* were obliterated. The membrane was thickened, vascular, and injected at the cardiac extremity.

The spleen was considerably enlarged, was about 7 inches long, 4 broad, 2 thick, and weighed 20½ ounces. Its substance was much softened, being reduced to a pulpy mass, infiltrated with bloody semifluid claret-coloured matter, with no trace of organization.

Case 6. Thomas Harris, aged 38, hawker, of irregular habits, lastly residing in the Grassmarket, was admitted on the 27th day of October, in the eighth day of fever, with thirst, epigastric pain, tenderness and distension, pain in the right side, cough

and expectoration of frothy mucus, the complexion dingy, the eye turbid and hollow, and the features shrunk and contracted, and great general debility.

The symptoms proceeded; and, though the epigastric pain was relieved by the means employed, on the ninth day after admission, the respiration was at 48 in the minute, with incipient tracheo-bronchial rattling; and, with increased difficulty and labour in the breathing, death took place the same day at half-past 5 P. M.

The treatment consisted of an emetic at admission, followed by cathartics, antimonials, leeches applied twice to the epigastric region, blood drawn from the right side by cupping, and at the close when the extremities became cold, and the respiration rapid, a large dose of tartrate of antimony (4 grains,) spirits, and sinapisms to the calves of the legs.

Inspection disclosed the following appearances.

Head. A considerable quantity of serous fluid was effused beneath the subarachnoid membrane; and its vessels, with those of the *pia mater*, were distended with dark-coloured viscid blood. The cerebral arteries also contained the same kind of blood, and their coats were slightly opaque, by means of steatomatous deposition. The substance of the brain presented numerous dark-coloured spots, and transverse streaks; and the lateral ventricles contained a quantity of serous fluid.

Chest.—Of the right lung, the substance was dense, firm, and consolidated, and a section of the superior lobe presented numerous white specks mixed with black; both being divisions of minute granular bodies, which gave the lung a hard feeling, and a variegated granular aspect. The substance of the lung was infiltrated with dark-coloured serous fluid. The lower lobes were free from the granular appearance; but their substance was occupied by numerous tubercles, and the intermediate tissue was of a reddish brown colour, and effused copiously red frothy serum. The substance did not crepitate on pressure, and sunk in water.

The summit of the left lung presented a puckered shrivelled appearance of the *pleura*, with considerable induration of the subjacent lung; and when this was divided a small cavity, the size of a filbert, was exposed. The interior was completely empty; its surface was covered by whitish viscid matter, of the consistence of soft chalk, moistened with water; and when this was removed, it was found to cover a smooth newly formed membranous surface, formed by a firm whitish cartilaginous matter. No bronchial tube or vessel communicated with the interior of the cavity. Tubercular bodies in the second stage were disseminated through the lung, but not very numerously.

Abdomen.—The liver was much enlarged, pale, and friable. The spleen was large, and of natural firmness.

The mucous membrane of the stomach was of a pale fawn colour, variegated with a few red patches along the small arch.

The duodenal mucous membrane was granulated and firm. The ileum contained near its lower end several minute ulcers, several of which were the abraded summits of enlarged muciparous glands. The other follicles in the neighbourhood were enlarged but not ulcerated.

Epicrisis.—In this case it is interesting to remark the extent to which both the lungs and intestinal tube were diseased,—the latter in all probability in consequence of the disease of the lungs, or at least from the same constitutional cause as the disease of the lungs. The individual was phthisical, though the tubercular disease seemed at the time to have become stationary. The closed cavity in the upper lobe of the left lung was lined by a new membrane, the thickness and firmness of which showed that it must have been of some standing; while the puckered appearance of the *pleura*, the indurated character of the surrounding lung, and the thickened chalky-like matter, with which the membrane was covered, with the obliteration of the emergent bronchial tubes, showed clearly that the process of contraction had commenced, and was far advanced, and that, had life been prolonged, the cavity would have been obliterated, and in its place there would have been substituted a chalky mass, enclosed in a membranous capsule, either solid or containing only a minute cavity.

The dissection of the right lung showed that it was affected by a granular tubercular deposit, which was beginning to create secondary *bronchitis* and *pneumonia*, and which would probably have proceeded to the fatal termination at no remote period. The pain which the patient during life referred to the right side was evidently occasioned by the establishment of the latter disease in the lower part of the right lobe.

This case illustrates the effect which the previous lesion of the lung, and the consequent lesion of respiration exercised upon the febrile attack. Where the lungs are healthy, the capillaries make a strong and often successful resistance to the noxious influence of the typhoid poison. Where these organs are diseased, and consequently little able to renovate the blood after it has circulated through the system, and been returned to the right auricle, the poison operates with a rapid and irresistible energy in extinguishing the powers of the different organs. The dingy livid colour of the countenance, the hollow turbid eye, and the remarkable debility in this case, more resembled the state of fever in the third week than on the eighth day.

Another example of the influence of disease of the lungs on

fever, and also of the influence of fever in modifying disease of the lungs, is to be found in the following case.

Case 7. Gangrene of the lungs.—Donald Murphy, aged 56, porter, resident in the Cowgate, addicted to the habitual, though not excessive, use of spirits, had been wetted when over-heated on the 15th of October; and in the course of the same evening he was attacked with violent shivering, alternating with heat of skin, urgent thirst, and loss of muscular power. On the 18th, when he was admitted, the countenance was dingy and leaden-coloured, the eyes hollow, sunk, but glassy, the extremities cold and blue, the tongue covered with a dark slate-coloured fur, rather dry, and tremulous when protruded, and the pulse weak and variable, being at one time 80, and at another 44, and irregular. A faint eruption of dark-coloured spots was perceptible on the skin.

The only remedies ordered were cathartics, and antimonials, and afterwards some porter and spirits, with warmth to the extremities.

Two days afterwards he complained of cough, and pain in the left side, in which vesicular respiration was inaudible. No expectoration was visible. A blister was applied; the squill mixture was prescribed; the bowels were opened by means of calomel and jalap, and he was allowed some ale instead of the porter.

On the 23d October, the eighth day of the disease, though the cough was easier and pain of the side was abated, he complained of breathlessness, the extremities were cold, livescent, and marked with bluish patches, and the pulse was 92, more regular but small. Four grains of tartar emetic were administered in two ounces of water, sinapisms were applied to the legs, and warmth to the feet; and tea and warm diluents he was allowed freely. He had hitherto no delirium, or any symptom denoting unequivocal disorder of the brain.

The antimonial was followed by neither squeamishness nor vomiting, but by three copious motions, with relief of the cough and breathlessness, and disappearance of the pain. The surface, however, was still cold; the pulse was 100, feeble; and the patient complained of great weakness. The sinapisms were not felt; they were therefore directed to be applied next day, when they produced intense pain, and with the aid of the warm bath a good night followed, the skin became warm, the pulse fell to 88, and was pretty firm, and the expression of the countenance was better, and the colour less leaden. The expectoration, however, which was now coming up, consisted of viscid brownish mucus streaked with blood, and some subcrepitous rattle was audible at the convex part of the right side of the

chest, and two days afterwards a mixture of the crepitous and mucous rattle was recognized. Blood was drawn from the interscapular region by means of cupping, and a blister was applied, the antimonial solution was ordered, and leeches were afterwards applied. These symptoms continued much in the same state till the 16th, when the mucous rattle with large bells was heard in the right subscapular region, and strong bronchial respiration above that; and on the left side, dulness on percussion in the posterior subscapular and infra-axillary regions, with crepitous rattle in the subscapular region of the same side. The large dose of antimony was repeated with relief to the respiration and cough; but next day he had more hiccup, for which, with the weakness, wine and sulphate of quinine, with small doses of carbonate of soda, were prescribed.

On the 18th of November, the thirty-fourth day from the date of attack, he complained much of breathlessness, though not of cough; and expiration was accompanied with tracheo-bronchial mucous rattle, the breath emitted a heavy fetid odour, and the expectoration consisted of serous ash-coloured mucus, slightly streaked with brownish matter. The pulse had risen to 120, and become small and feeble; the features were shrunk; and the lips were livescent. These symptoms continued, and the surface and extremities becoming cold and blue, with rapid laborious respiration, death took place at twelve the same night, being the end of the thirty-fourth day from the date of attack.

Inspection on the 21st of November disclosed the following changes in the lungs.—The *pleura* of the right lung adhered extensively to the costal *pleura*. The upper lobe of the lung was sound; but the substance of the lung was more dense and heavy than natural, especially that of the middle lobe, and when divided it was red, uncrepitating, and inelastic, and allowed much red-coloured frothy serum to escape; various parts were softened. The other parts of the lung were more crepitant; but the whole lung was more or less infiltrated with reddish frothy serum. The large bronchial tubes were filled with viscid mucus, the smaller with more fluid mucus; and the membrane was embrowned.

On the left side of the chest the *pleura pulmonalis* also adhered extensively to the *pleura costalis*. The upper lobe of the left lung was condensed and inelastic; and its substance was of a brownish colour, interspersed with portions of a reddish tint; and much sanious dark blood-coloured serum escaped from the incisions. The upper and lower lobe adhered by old interlobular exudation. Near the lower margin of the upper lobe at its convex region, rather posteriorly, was a soft pulpy spot, giving the sensation of a fluid; and when divided by an inci-

sion, the portion of lung, to the extent of about a cubic inch, but rounded in outline, was softened, dissolved, and putrilaginous, emitting a fetid heavy odour. When the soft semifluid dark-coloured matter was gently removed by washing, the part presented an irregular hollow surface, with flocculent shreds and filaments.

At the anterior and internal part of the inferior lobe, where it corresponds to the *pericardium*, was found a loose open cavity, with a flocculent shreddy bottom, presenting fragments of bronchial tubes and blood-vessels, intermixed with dark violet-coloured semifluid matter, and emitting also a fetid heavy odour. The shape of this softened portion was irregular, and its margins were ill-defined.

The outer surface of the inferior lobe presented a cup-like cavity, of a circular shape, and with well-marked, abruptly cut edges. The diameter was at least one inch and a half, about the size of a half-crown piece; and its bottom was perfectly clean, and free from sanious fluid, hard, and presented many closed bronchial tubes and blood-vessels; while beyond the edges, which were firm, sharp, and well-defined, the lung was sound and natural in aspect. From the surface of this cup-like cavity, neither air nor blood escaped.

Epicrisis.—This case presented a most perfect and instructive example of gangrene of the lungs, at once diffuse and circumscribed. The diffused gangrene was found in the softened patch, at the lower margin of the upper lobe, and the large loose pulpy cavity at the inner and anterior surface of the lower lobe. Of circumscribed gangrene, the globular cavity on the outer surface of the same lobe was a good example. The mechanism of the former it is not easy to explain. With regard to the latter, it had every appearance of a surface from which a mortified eschar had been detached, as the adjoining and surrounding portion of lung showed no gradual transition from gangrenous softening to sound consistence.

Regarding the origin of this gangrenous affection of the lung, it is not easy to assign any probable cause. Idiopathically it is a very rare disease. Morgagni mentions only one example, which is probably referable to this head. Broussais adduces a very good history of the disease, which had come under his eye. Laennec specifies four cases, one communicated by M. Cayol, one from the manuscripts of Bayle, and two others from personal observation. Lorinser had seen several cases of the disease. Three cases, given by M. Schroeder Van der Kolk, I have described in the forty-sixth volume of this Journal, p. 172. The observations of the whole of the authors now mentioned lead to the inference, that it is a rare disease. It is remarkable, however, that one case occurred in the hospital about ten days pre-

vious to that which I have detailed, and another took place a few days after, in the body of a woman, labouring under fever, under the care of Dr Alison.

The peculiarity in the case now detailed is, that the left lung presented an example of uncircumscribed and circumscribed gangrene at the same time. The two softened black portions were instances of uncircumscribed gangrene; and the circular cup-like cavity in the outer surface of the lower lobe of the lung was a distinct and well-marked instance of circumscribed gangrene.

That the case was one of typhous fever, the chief evidence was in the eruption, and in the mode of attack. I should mention, however, that this man had no pain of the head, muttering, or any of those nervous affections which indicate the presence of typhous fever. The dingy appearance of the face, and the coldness and blueness of the extremities, might have proceeded from the lesion first induced by the affection of the lungs at the commencement. If the evidence be sufficient to establish the inference, that it was a case of typhous fever, it must also be allowed that it was from the commencement complicated with *pneumonia*, or that it was a case of the *pneumonia typhodes*.

Several cases of this complication, Dr Alison informs me, have come under his observation, during the lapse of some years, in the practice in the Clinical Wards.

The next was a case still more remarkable, in presenting at once traces of disease in the brain, lungs, heart, and spleen.

Case 8.—*Tubular Bronchitis, and diseased Heart.*—James Monro, aged 37, maltman, residing at Dalkeith, was admitted on the 26th November, after febrile symptoms had continued for eight days, with frontal headach, suffused turbid eyes, flushed countenance, distension of the temporal arteries, the pulse at 112, dry brown-furred tongue, and the skin mottled with an eruption of bright-coloured minute spots. Previous to admission, blood had been drawn from the arm, with the effect of alleviating the frontal headach; and after admission the head was shaved, sixteen leeches were twice applied to the temples, and laxatives and antimonials were administered, and the cold affusion to the head was employed.

On the 29th, however, the third day after admission, and the eleventh of the disease, when the headach was entirely gone, it was observed that he was coughing a good deal, and expectorating much viscid jelly-like mucus streaked with blood; and upon examining the chest, the sonorous rhonchus was heard before and behind on both sides, but most intensely in the right, with a good deal of resonance of the voice behind. Six ounces of blood were drawn by cupping, from the right subscapular region, and the rhonchus disappeared next day, but mucous rattle was

heard. Cough, however, continued, and the expectoration was increased in quantity, rather more opaque, and still tinged with blood. The eyes gradually became clear; the cough abated much; and the expectoration, though still streaked with blood, was less opaque and less abundant. A boil, rather of a carbuncular appearance, took place on the nape of the neck, and was opened by a crucial incision. On the 4th of December, the tongue was clean and moist, the eyes clear, the pulse 92, soft and regular, and he had no complaint. About rather less than an hour after the visit, on turning suddenly in bed, he fell back to all appearance lifeless. The nurse instantly went for Dr Stokes, the clerk; but breathing and the action of the heart had entirely ceased; and life was extinct.

The body was inspected on the 6th of December, and the following was the state of the different organs.

Much fluid was effused into the subarachnoid tissue, especially on both sides of the falx, superiorly and posteriorly to the posterior end of the hemispheres. The vessels of the *pia mater* were numerous, large, and distended with dark-coloured blood. The *pia mater* and arachnoid membrane were thicker and firmer than usual. The substance of the brain was soft, and œdematous from infiltration of watery fluid, and it presented numerous bloody streaks and points. The lateral ventricles contained a considerable quantity of serous fluid; and the septum and *fornix* were softened. Much serous fluid also escaped from the spinal *theca*. The *cerebellum* and the annular protuberance were very vascular; and the substance of the latter when divided was of a pink colour, from the congested state of the vessels distributed through it.

Chest.—The bronchial tubes were everywhere on both sides filled with much viscid mucus, which was streaked and tinged with blood, and which adhered firmly to the bronchial membrane. When this was removed, the membrane was found reddened, embrowned, and roughened. The substance of the lungs was gorged with bloody serum and blood; and the vessels contained universally dark-coloured semifluid viscid blood. The lungs were soft and lacerable.

The heart was rather small in size, of a pale-red or fawn-colour, soft, flaccid, and lacerable. The chambers were rather small, excepting the left, which was a little dilated, with attenuation of the walls and softening of their substance. At the base of one of the aortic semilunar valves, in the angle between the valve and the artery, was a minute growth of a vegetative granular appearance. This was found covering completely the origin of one of the coronary arteries, and previous to cutting

open the artery, the other extremity of the vegetation must have covered the other coronary artery.

The spleen was softened, and reduced to a putrilaginous mass.

The stomach and intestinal tube were comparatively healthy.

Epicrisis.—This case suggests several important topics for remark and consideration.

1. It is, in the *first* place, singular, that though the subarachnoid and intra-cerebral effusion was so considerable, and the *fornix* and *septum* were softened, yet neither delirium nor remarkable stupor had taken place; and the patient seemed to be slowly recovering, though a lesion in the brain so serious existed.

2. In the *second* place, it is important to observe, that in this case the febrile symptoms were complicated by the simultaneous existence of a very serious form of tubular *bronchitis*, or inflammation of the mucous membrane of the *bronchi*, proceeding to the formation of viscid jelly-like mucus streaked with blood. There is reason to believe that this man had laboured under some bronchial affection previous to the appearance of the febrile symptoms.

3. The immediate cause of death, nevertheless, was neither the affection of the brain nor that of the lungs; but the disease of the heart; and, indeed, death took place exactly as it ever does in diseases of the heart, that is, suddenly and instantaneously. The patient was the one minute comparatively well, and apparently recovering, and the other he was a lifeless corpse.

With regard to the exact mode in which death took place, I think it is well explained by the appearances found on dissection. The vegetating product had covered the orifice of at least one, perhaps that of both coronary arteries, and instantly produced *anaemia* of the heart, and immediate fatal syncope of that organ. The heart was besides in a state of atrophy; and this seems to have arisen from the growth frequently preventing the influx of a sufficient quantity of blood into the coronary arteries. The substance of the heart had the usual pale fawn-coloured tint, and softened consistence observed in atrophied heart.

Case 9.—Crichton Chalmers, aged 56, coachman, was admitted on the 28th of November, after having been ill with symptoms of fever for six days. He had frontal headach, suffused watery eyes, bloated livid countenance, a moist viscid slate-coloured fur on the tongue, with an eruption of red spots on the skin. The respiration was short and rapid, with a sense of tightness across the chest, scanty expectoration of viscid frothy mucus, the respiratory murmur inaudible over the greater part of the chest below, and in the centre, sonorous rhonchus in the submammary regions, and epigastric pain aggravated by coughing and pressure.

The head was shaved, blood drawn from the arm to ten ounces, and laxative medicine was given. Next day after a restless night, and with delirium, the countenance was quite livid, the pupils contracted and insensible to light; he was quite unconscious of external objects and insensible to all impressions; the respiration was 48, very laborious; and at each expiration the right angle of the mouth was unconsciously and involuntarily inflated, while he inclined to the right side.

Twelve ounces of blood were drawn from the head by cupping, a purgative enema was administered, and sinapisms to the legs were applied. He was less insensible and unconscious next day; but the paralytic inflation of the right cheek and angle of the mouth (*fumer la pipe*) continued. Leeches were applied to the head, with little impression on the symptoms, and after increase of insensibility and rapid laborious respiration, death took place on the evening of the 30th, at 8 P. M.

Inspection disclosed the following state of the organs.

Head.—Much subarachnoid effusion over the whole of the superior, posterior, and inferior part of the brain. The vessels of the *pia mater* were perfectly loaded with dark-coloured semifluid viscid blood.

Between two and three ounces of serous fluid were contained in the lateral ventricles, mostly in the posterior *cornu*, which was much dilated posteriorly; and some serous fluid was found at the base of the brain, and escaped from the spinal theca. The substance of the brain presented many dark red streaks and spots; and that of the *cerebellum*, and especially of the annular protuberance, had acquired a bluish pink colour. The arteries were distended with dark-coloured blood; and their coats were slightly opaque.

Chest.—The lungs were much loaded with dark-coloured blood on both sides, but especially on the right, incisions of which allowed much bloody frothy serum to escape. The substance of the lung was softened, œdematous, and pulpy. The bronchial membrane was very much embrowned; and the tubes contained a good deal of viscid mucus. The vessels were gorged and distended with dark-coloured blood.

The heart was enlarged, but flaccid, and its substance was soft and lacerable. The valves were quite natural; but incipient steatomatous deposition was seen at the commencement of the aorta.

Abdomen.—The mucous membrane of the stomach over the whole cardiac end, and along the small arch, and to some distance on both sides, was completely softened, and came away by the slightest touch and by washing, exposing the submucous and muscular coat. The colour of the membrane was a reddish gray, varying to deep brown, especially in the neighbourhood of veins. At one part of the small arch, about an inch

and a half from the pylorus, a part of the membrane was so completely removed in an elliptical shape, that it seemed like the remains of an old, and perhaps cicatrized ulcer. The softened portion of the gastric villous membrane was distinguished from the unsoftened by a visible line, the mucous membrane adhering well at the healthy portion, near the pyloric end of the organ.

The spleen was enlarged to twice its natural size, and was reduced to a soft pulpy claret-coloured semifluid mass, without trace of organization.

The duodenal mucous membrane was rough, firm, and granular.

The kidneys were congested with dark-coloured blood, but not diseased.

Epicrisis.—This man had long laboured under cough; and was one of those deluded persons who make a point of taking a certain proportion of spirits daily. He appears by this means to have destroyed the energy of the vascular system, and to have established a sort of habitually irritative state of the bronchial membrane. When the fever attacked him, it operated immediately in changing the qualities of the blood, by destroying the little power left the lungs of aerating the blood; and the result was, that, on the seventh day of the disease, the brain, deluged with a load of unaerated blood, was exactly in the same state as that of a person who had been breathing carbonic acid gas, or carbonic oxide for several hours. The brain and the whole of the organs indeed were speedily poisoned by the presence of a quantity of dark-coloured unchanged blood.

The next case would be that of J. Sutherland. But as this was an instance of ulcer of the stomach, I propose to defer it to another opportunity.

Case 10. James Graham, aged 12, residing in the Canongate, was admitted on the 8th January, on the sixth day of fever, with frontal headach, approaching insensibility, heavy turbid eyes, muscular tremors, inability to articulate, epigastric tenderness, much thirst, pulse at 104, small and oppressed, and a dark-coloured eruption on the skin. The symptoms of general oppression and loss of nervous and muscular power increased, notwithstanding the active use of all the usual remedies; and stupor with *subsultus* ensuing on the 11th, terminated in death the same evening, at 5 P. M.

Inspection disclosed the following appearances.

Head.—Much subarachnoid effusion, dark vascularity of the *pia mater*, thickening of the membranes, and flattening of the convolutions; a little fluid in the posterior *cornu;* and the annular protuberance and *cerebellum* tinged of a pink colour, with a quantity of dark blood in their minute vessels.

Chest.—Old adhesions on both sides of the chest. The lungs were gorged with blood; and the bronchial tubes were filled with viscid adherent mucus, and the membrane was reddened, embrowned, and roughened.

The heart was firm, otherwise not unnatural.

Abdomen.—The *rugae* of the stomach were strongly marked; and the membrane was healthy and firm, though vascular, and a little thickened and rough with adherent mucus, and much indigested food.

The aggregated glands of the *ileum* were large, distinct, and hypertrophied; and a small portion of the membrane was abraded and ulcerated at the *caput cœcum;* and in the ascending colon was a patch of ulceration, extending transversely round the bowel nearly its whole circumference.

The other organs were healthy.

Case 11.—The case of Alexander Robertson, aged 50, admitted on the 17th January in the seventh day of fever, and who died on the 18th, may be merely noticed. From particular circumstances, it was impracticable to see more than the mucous membrane of the stomach, and the lower part of the right lung. The former was extensively softened; and the latter was softened and infiltrated with semifluid pulpy matter.

Case 12.—William Macgregor, aged 24, resident in Leith Wynd, shoemaker, was admitted on the 4th February, after having been ill for eight days with febrile symptoms. This man, whose habits were extremely bad, had been in a state of uninterrupted intoxication from the 1st of January 1837. At admission he had slight headach, dull turbid eyes, approaching insensibility, a dingy colour of the complexion and surface, much epigastric and umbilical tenderness, a small oppressed pulse at 116, cold extremities, and the skin mottled with a dark-coloured eruption.

Death took place by coma the third day afterwards.

Inspection.—Most copious sero-albuminous effusion was found in the subarachnoid tissue, all over the hemispheres, especially over the *sulci.* The vessels of the *pia mater* were much loaded with dark-coloured blood. The sinuses were empty, unless the lateral, which contained also dark semifluid blood; and the cerebral arteries generally were distended with fluid of the same kind.

The ventricles contained much serous fluid, estimated at from one ounce and a-half to two ounces; and the *fornix* was softened. The brain was œdematous, and traversed with numerous dark streaks and points; and the *cerebellum* and annular protuberance were of a decided pale pink colour. Much fluid escaped from the spinal *theca.*

The bronchial tubes were much loaded with dark viscid ad-

herent mucus, and beneath this the membrane was embrowned and rough. The lungs were loaded with blood; and their vessels contained a great deal of semifluid viscid dark-coloured blood.

The mucous membrane of the stomach presented various pale thickened patches, about the size of a sixpenny piece, and some not larger than a fourpenny piece. In other respects the membrane was not softened or unsound.

The mucous membrane of the duodenum was firm and granular.

The liver was of a nutmeg-colour.

The spleen was large, and completely reduced to a dark-coloured semifluid putrilaginous mass.

Case 13.—Joseph Ramsay, aged 60, labourer, resident in Causewayside, was admitted on the 9th February, on the eighth day of fever, with oppressed aspect, frontal headach, proceeding to insensibility, dingy colour of the surface, dingy countenance, suffused turbid eye, extremely feeble pulse, and cold livid extremities. He had also cough, pain of the right side, and the sonorous rhonchus so distinct that the vibration could be felt through the intercostal muscles by the fingers. The surface was covered with an extensive close-set eruption of faint livid-coloured spots. The symptoms proceeded, with subsultus, floccitation, constant restlessness, and a desire to get out of bed; and these were succeeded on the second day by stupor and feebleness, terminating in death on the third day after admission.

Inspection took place on the 14th of February.

Very extensive and copious effusion of sero-albuminous fluid was found in the subarachnoid tissue. The vessels of the *pia mater* were loaded. The glands of Pacchioni were large and distinct, and the *dura mater* adhered firmly to the arachnoid and *pia mater*. A considerable quantity of serous fluid was found in the ventricles, which were much dilated and distended, and the whole brain was œdematous with infiltration of serum. The longitudinal sinus was empty above, but the lateral sinus was filled with dark-coloured semifluid blood; and the arteries at the base of the brain were in like manner filled with the same species of blood. The *cerebellum* and annular protuberance were tinged with a slight pink-colour.

The right lung was much gorged with blood, dense and uncrepitating in the middle and inferior lobes, and when divided allowed much dark-coloured frothy viscid serum to escape from it. The anterior part of the lower lobe was emphysematous. The bronchial tubes were filled with viscid adherent mucus, and the subjacent membrane red, embrowned, and rough. The blood-vessels contained much viscid semifluid blood.

The left lung was less dense than the right, and still crepitated when pressed. The posterior part, however, especially of

the lower lobe, was gorged with blood, of dark-brown colour, and when divided it allowed some blood-coloured frothy serum to escape. The larger bronchial tubes contained viscid adherent mucus; and the bronchial membrane was dark red and roughened. The cavity of each *pleura* contained at least 2½lb. of bloody serum.

The pericardium contained between six drachms and an ounce of serous fluid.

The heart was enlarged in all its dimensions, from the base to the apex, which was obtuse and rounded, and transversely across the base from the right acute margin, to the left obtuse margin.

The right auricle was distended with blood. The right ventricle was thickened in its *parietes*, and enlarged in capacity.

The left auricle was rather larger than usual. The left ventricle was enlarged and considerably thickened, and indurated in its *parietes*. The valves were a little indurated. The coronary arteries were beginning to be opaque and ossified.

The mucous membrane of the stomach was a little thickened and variegated, but not softened.

The spleen was large, and its substance was reduced to a soft, semifluid wine-lee coloured mass, without any trace of organization.

General Summary.

III. The whole number of cases treated between the 26th June 1836, and the 12th February 1837, amounts to 181. But from this number the following deductions must be made. 181

Cases of primary, bronchial, or pneumonic inflammation, already stated, marked *, excluding Arnott,	9	
Cases of meningitis, one idiopathic, No. 34 [Adamson,] one secondary or traumatic, N. 139 [Moodie,] .	2	
Case of peritonitis in No. 13, J. Davie, .	1	
	12—	
		169

The number of fatal cases amount to 31. But these it is requisite to class in the following manner; as the termination was not in all necessarily connected with the febrile disorder. 31

One *meningitis*, (Adamson,) . .	1	
Three pneumonia, . .	3	
One hepatized lung, (Napier,) .	1	
One gangrene of the lung, (Murphy,) .	1	
One disease of the semilunar valves, producing instant death, (Monro,) . .	1	
One, ulcer of the stomach, (Sutherland,) .	1	
	8	23

After making the deduction necessary for these cases, the

number of fatal cases amounts to 23 in 169 cases, or 1 in $7\frac{1}{3}$, or 135 per 1000. This rate of mortality is, as nearly as possible, the same as it appeared to be in last Report. Is the small difference to be ascribed to the difference in the character of the epidemic, as showing a greater tendency to affect the lungs, and thus poison the blood at an earlier period, and to a more intense degree?

Among the whole 169, in only 54 cases could the disease be with probability traced to contagion; in one it was traced to contagion and a blow on the head; in two to contagion doubtfully; in 47 cases the disease was imputed to cold or to cold and moisture; in three to fatigue; and in two it was traced to drinking.

The day of the disease on which the patients applied for admission was very various; in few cases early, in general, after several days illness. In all instances it is difficult to ascertain the exact day of attack, as one of the most common symptoms of mental disorder in fever is impaired memory, and inability to mark the duration of time; and in the instances in which the inquiry is attempted by questions put to friends or companions, their inability to observe the first indication of sickness renders them unfit to give accurate information. In the instances in which the information was collected, as carefully as possible, the following results were obtained:

On the 1st day of the disease	1	was admitted.
2d,	8	
3d,	7	
4th,	20	
5th,	14	
6th,	24	
7th,	14	
8th,	37	
9th,	6	
10th,	5	
11th,	1	
12th,	2	
13th,	3	
14th,	6	
and beyond the second week	1	

From this table it appears that the largest number of cases was admitted on the eighth day of the disease; and when it is remembered that at this period the active stage of the disease is past, and has given place to the stage of congestion, oppression, and debility, it will be at once manifest how much this circumstance must oppose any active measures of depletion, applied either generally or locally. Though the symptoms in some instances demanded depletion after the commencement of the second septenary period, yet I always found that the depletory measures had much less remedial influence, and were more in

danger of inducing feebleness, than before the commencement of this period.

On the respective ages at which fever chiefly selects its victims, perhaps the number reported is too limited to afford very correct or positive conclusions. Among the cases admitted, the ages are divided in the following manner and proportions:

Below the age of 10,	-	12 cases were admitted.
Between the ages of 10 and 20,	-	57
20 and 30,	-	48
30 and 40,	-	23
40 and 50,	-	14
50 and 60,	-	12
		166

From this table it appears that the greatest number of cases was admitted between the ages of 10 and 20, and 20 and 30, that those between 30 and 40 amounted to not quite one-half of the latter; and that the numbers admitted below 10 and above 40 were very nearly the same. It is remarkable, and may be esteemed a proof of the general tendency of the disease to prevail at the same rate, or in persons of the same ages, that these numbers accord in general accuracy with those furnished by the last Report of 1834–1835.

Upon examining the cases, with the view of ascertaining to what extent local affections of particular regions and organs prevailed, and classifying the cases treated according to the affection of particular organs, we find that, in a very small number of instances (2) was the febrile disorder free from symptoms of local complaint, and that in many cases more than one organ was affected. To give some idea of the complication of the febrile process, I have classified the whole of the cases treated and presenting symptoms of fever, in the following manner:

	Cases.
Symptoms of affection of the head alone occurred in	47
Symptoms of affection of the thoracic viscera, chiefly the lungs alone, occurred in - - -	5
Symptoms of affection of the epigastric organs alone occurred in	7
Symptoms of affection of the throat alone occurred in	1
Symptoms of affection of the abdominal organs without diarrhœa occurred in - - - -	1
Symptoms of affection of the abdominal organs with diarrhoea occurred in - - - - - -	2
Symptoms of affection of the head and chest, occurred in	23
Symptoms of affection of the head and epigastric region in	59
Symptoms of affection of the chest and epigastric in	1
Symptoms of the head, chest, and epigastric region in -	6
Typhomania and gangrene of the toes took place in -	1

	Cases.
Gangrene of the lungs took place, in - -	1
Symptoms of head disorder with double parotids, took place in	3
Symptoms of head disorder with single parotids, in -	3
Symptoms of affection of the head, throat, chest, and belly, (Tierney) - - - - -	1
Symptoms of affection of the head, throat and chest, in	3
Symptoms of affection of the head, throat and epigastrium, in	2
Symptoms of affection of the head with diarrhœa, -	1
Fever without local affection, - - -	2
Fever with anorexia and articular pains, - -	1

From these numerical statements several important conclusions, illustrating the predominant characters of fever in this country, may be deduced.

1. The first proposition to which these statements lead, is, that by far the most frequent form which fever assumes in this country consists in more or less pain of the head, generally referred to the frontal region, with suffusion of the eyes, which are turbid and watery, and more or less intolerant of light,—accompanied, further, with tenderness or pain in the epigastric or umbilical region or both, some tension in that region, sometimes commencing with the frontal headach, sometimes following it, but always felt more or less intensely in the course of the disease. This combination of symptoms took place in more than one-third of the whole number of cases.

2. The second proposition which results from the comparison of the numbers now given, is, that the next frequent form which fever assumes, is that in which symptoms of derangement in the cerebro-meningeal circulation take place, either alone, or in such an intense form as to obscure or mask every other local disorder. This form of the disease occurred in about two-sevenths of the whole number of cases.

3. The complication which follows next in point of frequency is that in which the symptoms of fever are associated with those of disorder of the cerebro-meningeal circulation, and at the same time of some affection of the bronchial membrane, tubular or vesicular, or of the lungs. This complication took place in more than one-seventh of the cases. It will afterwards appear that the numbers show that this is by far the most fatal variety of complication.

4. The class of cases next in frequency consists of those in which there were symptoms of tenderness or pain, with or without tension in the epigastric or umbilical region. This took place in one-twenty-fourth part of the cases.

5. Not very different is the proportion of cases which present at once symptoms of disorder in the head, chest, and epigastric region, being about one-twenty-eighth part of the whole amount.

Lastly, it appears that the number of intestinal affections is exceedingly small, since symptoms of disorder in the intestinal mucous membrane took place in two cases only, and of uneasiness of the abdomen with *stridor dentium*, probably from irritation of the intestinal membrane, appeared in one case only.

From these numerical statements several important results, as to the occurrence of fatal cases, and the circumstances by which the fatal termination is influenced, may yet be deduced.

In the first place, it appears that by far the largest proportion of fatal cases is found in that class which presented the two-fold affection of the head and chest. Of the twenty-three cases constituting this class, there are not fewer than seven fatal cases, or one-third—and constituting one-third of the whole mortality.

In the next place, it appears that a large proportion of fatal cases is found among those in which the symptoms of disorder of the head, chest, and epigastric region were associated. Of the six cases arranged under this head, three or one-half were fatal. This constitutes nearly one-eighth part of the whole mortality. Under the same head may be arranged the only case in which the symptoms of disorder were referred at once to the head, throat, chest, and belly, and which also proved fatal.

It is remarkable, on the other hand, that, among the cases in which the symptoms of local disorder were confined to the head alone, the proportion of fatal cases is smaller than in either of the two other classes. Among the forty-seven cases referred to this head are found five fatal cases, or about one-ninth, and forming of the whole mortality less than one-fourth.

Among the large class of cases, again, amounting to fifty-nine, in which the leading symptoms were referred to the head, and epigastric region, the fatal cases were not more than seven or rather fewer than one-eighth, but forming one third nearly of the whole mortality.

The only class of cases in which no fatal case is found, is that in which the symptoms were confined to uneasiness, tenderness or pain in the epigastric region with or without distension.

To confirm the accuracy of the inferences now stated, it will be necessary to institute similar calculations and comparisons with lists of cases not less, perhaps more numerous. In the meantime it is proper to observe, that in the cases from which the deductions now stated are framed, the degree and existence of the different orders of symptoms presenting themselves in the respective organs, and functions were observed and reported at the time with particular care.

I cannot conclude without expressing my thanks to my clerk, Dr J. M. Stokes, for the accuracy with which the histories of the cases were taken, and the care with which they were arranged in tables, and his uniform attention in carrying into effect all the measures required.

ART II.—*Cases and Communications illustrative of subjects in Military and Naval Surgery.* Communicated by Sir GEORGE BALLINGALL, Regius Professor of Military Surgery in the University, and Senior Surgeon to the Royal Infirmary of Edinburgh.

MY DEAR SIR, *Edinburgh, 15th November* 1836.

FROM my official situation in this University, I have become the depositary of numerous interesting cases and communications, which have been furnished to me successively, for a series of years, by the kindness of my pupils and professional friends. Of these I now forward to you some cases, illustrative, chiefly, of the reunion of parts separated by sabre or incised wounds, implicating the bones.

Should these be deemed worthy of a place in the Edinburgh Medical and Surgical Journal, I shall have much pleasure in forwarding to you, from time to time, several others, illustrative of various points in the practice of Military and Naval Surgery.—I remain, my Dear Sir, your's very truly,

Dr Craigie. GEO. BALLINGALL

Cases I. and II.—Communicated by ALEXANDER S. ALLEN, M. D., Surgeon Royal Navy.

Induced by your late invitation to your pupils, to furnish you with the details of any cases they might possess confirmative of the principles of Military Surgery taught by you, I regret much that it is not in my power to offer you a more minute account of two, which came under my observation, while stationed at Tripoli, on the Coast of Barbary, bearing on two points particularly mentioned in your lecture on Wednesday last, viz. The occasional reunion of bones after their division by sabre wounds,—and the obliteration of the principal artery of a limb, consequent on mortification, to some distance above the line of separation.

The case illustrative of the first point occurred in a young Arab, who, during an engagement in the interior of the country, while endeavouring to unbuckle his waist-belt with both hands, their backs being opposed to each other, and their ulnar margins turned to the front, received a sabre wound, which traversed the heads of the metacarpal bones of the little, ring, and middle fingers of one hand, and the same bones of the opposite hand, about an inch nearer their digital extremities, dividing at the same time all the arteries, veins, nerves, &c. in its course. I first saw the patient six or seven weeks after the receipt of the injury, labouring under no constitutional irritation, with his hands pronated and secured, as well as the fore-arms, by strings, to flat pieces of board, extending from the elbows beyond the tips of the fingers. He had no power of motion in

any of the fingers, while sensation was confined to the thumbs and fore-fingers. Both hands were slightly œdematous, and the external track of the wounds across the palms and backs of the hands marked by fungous granulations. The hemorrhage had been considerable in the first instance, but was ultimately restrained by the tight application of bandages, soaked in a tenacious tar-like fluid. No interference on my part was allowed. But I again saw the man three months from the date of the injury, when I found that cicatrization had made considerable progress; and reunion of the bones had taken place.

The second case was that of an Arab, brought to me from a village in the neighbourhood, who presented a long stump of the right thigh, the surface of which, at first sight, bore much the appearance of one in which no effort had been made to unite by the first intention after amputation. It was, however, on examination, easily discovered to consist of the condyles of the femur, covered with large spongy granulations, secreting good-looking purulent matter, with the integuments retracted, and sinuses varying in extent from an inch to two inches between some of the tendons. The patient stated that, about six months before the period at which I first saw him, on walking one morning, after having passed the night under a tree, he found his leg and foot swollen, painful, and discoloured, that the swelling quickly increased, and that in a few days the leg began to separate at the knee joint, until at last it was attached to the thigh merely by a small slip of integument, which he divided with his knife. As there appeared to be no enlargement of the bone, nor disease of the soft parts surrounding it, I amputated, sawing through the bone about an inch above its middle. Two small arteries, branches of the profunda, required ligatures; while in the situation of the femoral artery, nothing could be observed but a small mass of firmly condensed cellular membrane. The good state of the pulse, the absence of hemorrhage after the removal of the tourniquet, and the history of the case, might have satisfied me that the vessel had been obliterated thus far; but being perhaps over anxious, I dissected around this condensed cellular membrane for the space of half an inch, where I cut it across, and soon found that I had opened a pervious part of the artery, which was thickened in its coats, and its calibre diminished considerably. A ligature was applied, the stump dressed, and the patient soon enabled to return to his home in a more comfortable state than he had left it.

ALEX. S. ALLEN, M.D. Surgeon R. N.

Case III. Communicated by J. STEVENSON, Esq. Surgeon in the Honourable East India Company's Service.

The subject of your lecture yesterday recalled to my recollec-

tion a curious case of the suppression of hemorrhage from a large artery, not similar to those cases in which the vessel has been bruised or lacerated, but actually made by a cutting instrument.

The outlines of the case are the following. August 29, 1823. Abdoo Braheem, Jemadar of the Nabob of Masulipatam, received in an affray a large sabre wound across the arm, commencing a little below the outer edge of the deltoid muscle, and running obliquely downwards across the belly of the biceps, which appeared completely divided; the *os humeri* at that part was also cut across. The attendants described the stream of blood as very profuse, and projecting many feet. A turban had been tied round the wound with great tightness, which completely arrested the hemorrhage. On examination the biceps was found to be completely severed and the bone fractured; no pulsation was discernible at the wrist of the affected arm. It was at first determined to amputate his limb; but to this measure the Nabob was firmly opposed, and was desirous that an attempt should be made to save it.

Under these unfavourable circumstances, Mr Paterson and myself thought it extremely improbable that the attempt would succeed; and as it was considered extraordinary that the hemorrhage from so large an artery should have been arrested so simply, we resolved to see whether it would recur or not, and as a precaution, had a tourniquet kept loosely on the upper part of the limb, directing the assistants to tighten it in the event of hemorrhage. The turban was cautiously removed, and the lips of the wound were approximated as near as they would admit. A splint was placed under the limb. No hemorrhage supervened, and the pulse in the wounded arm at the wrist, on the third day, was barely perceptible and tremulous, that of the opposite 100. On the 13th day the pulse was rather stronger, only 68, while in the sound arm it was 82. The wound was nearly all cicatrized on the 26th day, and on the 45th the bone was firmly united.

As might have been expected, the arm proved of little use to him. I only mention it as affording a very extraordinary instance of the powers of nature in regard to recovery from wounds in the natives of India. I have a minute diary of the case, but was afraid it would have been too tedious to have detailed it to you at length.

J. Stevenson, Surgeon, Madras Army.

Case IV. Communicated by Mr Stratton, a Pupil of the Class of Military Surgery.

A. B. aged 29, a seaman belonging to the Norfolk whale ship, was accidentally struck on the right thumb by one of his comrades with a straight heavy knife fixed in a long handle.

The bone of the proximal phalanx was entirely cut through, and all the soft parts, except a slip of the common integument on the ulnar side of the phalanx. The incision passed obliquely from the radial to the ulnar side of the first phalanx, beginning at the distal extremity of it, and terminating about an eighth of an inch from its proximal end.

The opposite cut surfaces were placed and retained in apposition; they adhered, and in six weeks the man was at work, and using the right thumb as freely as the left. The joint between the two phalanges of the thumb was stiff; it was slightly flexed, but the patient was able to follow his occupation as a sailor, which he could not have well done wanting his right thumb.

THOMAS STRATTON.

Case V. Communicated by the late Dr Mackenzie, formerly of Irvine.

In conversing with you a few weeks since on the subject of wounds, I stated to you that, in November 1782, Thomas Ronald, a cart and plough wright, came to me about 8 o'clock P. M., with a portion of his left thumb in his pocket, it having been divided about the middle of the first phalanx. Upon looking at the thumb, and seeing that it was very cleanly divided and smooth, I told him, as no part of the remaining bone appeared to be shattered or in any degree injured, that I had no doubt but it would heal very kindly. He observed that he had kept the part which was chopped off, and, if I thought that it would again unite, he would like me to try it. Upon looking at it, after taking it out of his pocket, and finding it uninjured, I applied it very accurately, and then secured it by careful bandaging. I did not open it for the space of three weeks, when I found it perfectly reunited. He said the only inconvenience he experienced from it was, that it felt colder than the other in very severe weather. Ronald at that time was 45 years of age, and the father of six children. He lived a considerable number of years after the accident, and it is now fifty-two years at Martinmas last.

The figures in the date are so much effaced, that I cannot make them out, but I recollect perfectly that it was within a day or two of the Martinmas term.—JOHN MACKENZIE, M. D.

ART. III.—*Remarks on the Scarlet Fever Epidemic in Edinburgh in* 1835—1836. By CHARLES SIDEY, Surgeon, Edinburgh. [Read before the Medico-Chirurgical Society, December 1836.]

I AM induced to lay before the Society a few remarks on Scarlet Fever, not with the hope that any observations which I may

make are calculated to illustrate the pathology or improve the treatment of this disease, but with the intention only of contributing such limited materials, as it is in my power to furnish, towards the history of that epidemic, which has prevailed so extensively during the last winter and spring in Edinburgh and its environs. With this purpose, I beg to offer to the Society the following brief general observations upon the disease, as I have seen it during the present epidemic in my own private practice.

The present epidemic of Scarlet fever has, as is well known to the members of the Society, been both very extensive in its range, and, in some instances, very severe and fatal in its character. The first cases of the disease to which I was called, occurred about the 15th of December 1835, and during the latter half of that month twenty-six patients affected with the disease came under my care. It continued to prevail extensively up till May 1836; and by the latter end of that month, I find that I had attended in all between 120 and 130 individuals that had been attacked by the epidemic. Since that time up to the present period, isolated cases have continued to occur, to the number of 30, constituting a total number of cases seen by me amounting to between 150 and 160.

Symptoms and Varieties.—The disease presented in my practice very different degrees of severity and complication in different families, and even in different individuals belonging to the same family. The cutaneous efflorescence was in some instances very slight, and only partially diffused, whilst in others it has been much more generally, or indeed universally and continuously, spread over the whole of the body. In a few cases it exhibited a kind of deep purple, or livid-coloured patches, which I considered the most unfavourable variety of the eruption. In several instances where the throat was severely affected, the eruption did not disappear for a much longer period than usual. Thus I have seen it continue for a period of eight or ten days, either remaining steadily out during all that period, or disappearing and reappearing repeatedly and at irregular intervals.

The affection of the throat has been still more varied in its appearance, course, and intensity, than the affection of the skin, and has presented every possible gradation from a slight, but, as I conceive, always characteristic erythematous blush, to a very formidable and destructive gangrenous inflammation. In the more severe cases, the internal surface of the throat presented, at a very early period of the disease, an appearance like that which we could suppose to result from its being freely rubbed over with caustic potass. When the slough separated, the ulcers in the situation of the tonsils were, in several instances, so

large and deep as to appear capable of admitting the extremity of the index finger.

In regard to the constancy of the affection of the throat in scarlet fever, I would here beg to remark, that I believe it as essential for genuine scarlet fever to have the internal *fauces* more or less inflamed or congested, as it is for small-pox to have an eruption of cutaneous pustules. The former is in my opinion as necessary and constant a phenomenon in scarlatina as the latter is in small-pox. By this, I do not mean to allege, that in every case of *scarlatina*, we have an inflammatory pellicular effusion upon the lining membrane of the *fauces*, or ulceration, or mortification of this part; but in every instance of the disease we may, I believe, detect in it, upon careful examination, a certain unnatural degree of redness and swelling. It is by attending to this pathognomic symptom, along with the history of the premonitory symptoms, and of the exposure or non-exposure of the patients to *scarlatina* infection, that we may most certainly distinguish between the cutaneous efflorescence of *scarlatina*, and other efflorescences, greatly resembling it in their physical characters—such as that occasionally arising from the use of mercury in adults, and from disordered bowels in children, and those accompanying measles and *roseola*. It is I believe, in some instances, impossible to distinguish these eruptions by their physical characters only from the efflorescence of scarlet fever; and, in order to come to a certain diagnosis, we must include the state of the throat and other correlative circumstances, just as in the earliest stages of measles we have always the *tunica conjunctiva* of the lower eyelids loaded with blood-vessels,—a very early symptom—by attending to which I have been enabled to detect the disease before the morbid state of the skin made its appearance, and where there had been doubts as to the nature of the febrile affection which was impending.

The two more prominent seats of the disease, the skin and *fauces*, have been very variously affected in different cases, the degree of affection of the one having appeared to me to show little or no kind of direct relation with the degree of affection of the other. I have not unfrequently, for example, had occasion to observe the cutaneous efflorescence in its most distinct and well-marked degree, accompanied only by a deep redness, with some swelling, but no ulceration or whiteness of the throat; and, again, in other cases in the same house, I have found the fever terminating in a sore throat of the worst kind, but without any preceding or accompanying cutaneous efflorescence. Certainly, however, inthe great majority of cases, the skin and *fauces* have been bothdistinctly implicated in the disease; and

in some instances, the sore throat has become progressively worse for some days after the cutaneous efflorescence had run its course, I have repeatedly seen the disease present all these varieties in individuals belonging to the same family, and exposed to the same source of contagion; and as this is a circumstance which tends strongly to illustrate the true pathological nature of the malignant sore throat, and to show its perfect identity with *scarlatina*, I may be allowed to cite the outlines of one or two examples of the facts in question.

First, I attended a family in Howe Street, six of the members of which were attacked with the disease. In four of them the skin and throat were simultaneously and severely affected, while in the other two the sore throat presented itself without any cutaneous eruption. *2d*, In another family in India Street, three of the sons had sore throats without any eruption, while in four others both the skin and throat were affected, and in one of these a smart attack of bronchitis supervened. 3d, In a family residing in the Causewayside, Newington, in which eight individuals were attacked, the disease assumed several different types. In the two that were first attacked, viz. two girls of the respective ages of 7 and 9, the disease commenced under a congestive and malignant form. Their skin presented a purple or livid hue before and during the time of the eruption and sore throat, and at the same time they were seized with delirium, vomiting, and other alarming symptoms, which yielded so far to free leeching of the throat and temples, with free purging, and the frequent repetition of the warm bath, that both cases terminated favourably. In both these cases the fauces were severely affected. The brother of the two girls had next the sore throat without any eruption; and then the servant maid, a girl of 17, along with four of the younger members of the family, had both the sore throat and cutaneous efflorescence in a severe form.

Age.—During the present epidemic the scarlet fever has as usual been far most prevalent among the younger part of the population, but it has by no means been exclusively confined to them; and when it has attacked adult subjects, it appears to have been comparatively a much more formidable disease, to have more frequently and severely affected the fauces, and in some instances to have run on most rapidly to a fatal termination. I have heard of three adults, two of them belonging to the medical profession, and will have occasion to allude to a fourth, a patient of my own, who all sunk under the disease on the third or fourth day of the attack, the powers of the system appearing to offer little or no resistance to the malady, but giving way speedily and irretrievably, as if all the sources of life had been suddenly poisoned. The oldest patient whom I have myself

seen affected during this epidemic was a woman in Keir street, of about 50 years of age. In her, the throat was much affected without any cutaneous eruption. On the other hand, I had two little patients only 10 days old under my care, who passed favourably through the disease. The skin was much affected; the throat only slightly.

Recurrence.—In several instances I have seen second attacks of the disease. The persons to whom I allude, after having passed through an attack of scarlatina, and been again freely exposed to its infection, had well-marked fever, and the characteristic sore throats, and in three cases the cutaneous eruption. In some of these cases the fever and sore throat were both very short in their duration, in others very violent. In one case a child died of the second attack; in another (a boy) secondary dropsy and rheumatic pains of the joints supervened during convalescence.

Sequelae.—In regard to what are generally termed the secondary affections, or consequences of scarlet fever, and which often prove much more dangerous than the attack of the primary disease itself, I have seldom found them assume a very severe or dangerous character in the patients whom I have attended during the present epidemic,—a circumstance which I am inclined to attribute to the rigorous prophylactic measures which I have uniformly inculcated during the first weeks of convalescence.

In four or five cases the secondary inflammation of the submaxillary glands went on to abscess, and in most of these instances, there occurred also a purulent discharge from the ear. In no case has the inflammatory disease of the ear produced such disorganization as to cause deafness.

Seven only of the patients whom I have attended during the present epidemic have been attacked during convalescence with dropsy, or not one in twenty. In four of these, this secondary affection appeared under a very mild and manageable form; in a fifth it was very severe, though the patient ultimately recovered; in the two others it proved fatal. In above twenty cases, I have observed a form of secondary affection, with which I do not recollect to have met with any description in authors, viz. a kind of rheumatic swelling and inflammation of one or more of the joints of the extremities, as of the elbow and knee, the wrist, the ankle, and the hip. This affection of the joints has appeared to me to have followed principally after the cases in which the skin was much affected. It generally supervened during the first days of convalescence, and was frequently attended with very considerable pain and suffering. I have been informed of one aggravated case, in which this secondary inflammation was seated in the elbow and wrist, and went on to the complete destruction of these joints.

Mortality.—The present epidemic of scarlet fever has proved

very severe and fatal in particular localities and families. I have been authentically informed of various instances in Edinburgh, in which two, three, and four members of the same family have fallen victims to its attack. In my own practice I have met with the malady under every variety of form and appearance, from the mildest to the most virulent; but, owing to the early period of the disease at which I saw most of my patients, and the readiness and punctuality with which I have found the therapeutic measures that I prescribed followed out by the attendants, I have been so fortunate as to have lost only seven patients either under the primary disease, or its secondary consequences, out of about the 150 or 160, whom I have attended since the middle of December last.

The first of these seven fatal cases was a child eight months old, in Picardy Place, for whom I found it impossible to procure sufficient attention, owing to four others being ill in the same family. The throat in this instance was severely affected. My second fatal case occurred in a girl in Rose Street, of a highly strumous constitution, and who had laboured for some time under a well-marked organic affection of the heart. The third fatal case was in a boy in Brunswick Street, also of a very strumous constitution; he sank under the secondary dropsy. In another case, the dropsy proved fatal to a boy, for whom I could not obtain the requisite degree of attention and care, owing to the constantly stupid and intoxicated state of his mother, who acted as nurse. This patient had great tenderness in the region of the kidneys, and highly albuminous urine. The principal means that I was enabled to resort to consisted in local and general bleeding. In the fifth fatal case, the girl, a patient of 5 years, had been allowed to labour under the disease for three days before any medical advice was called in. By the time I visited her, the inflammation of the *fauces* had extended downwards into the larynx and trachea, where it ended in a fatal attack of croup. My sixth fatal case, occurred in Mr P., a man of about 36 years of age, who died on the fourth day of the disease. His skin was much affected in the form of deep purple patches, and, the intermediate parts were of a distinct yellowish tint; he had violent tremors, and his system presented from the very commencement of the attack, a decided tendency to sinking. The seventh and last fatal case which occurred to me was in a person who had formerly passed through the disease. During the second and fatal attack, the eruption was of a deep purple, and the fauces and nostrils were extensively ulcerated.

Latent Period. As to the latent period of scarlet fever, or the interval of time that elapses between the exposure to the contagion of the disease and the access of the first symptoms of it, this interval would seem to vary in different individuals;

but several facts have fallen under my notice, which appear to show that the scarlatina may break out in a predisposed individual as early as forty-eight or sixty hours after the receipt of the infection. The facts to which I allude are the following; 1. Mrs W. went from Dean Street, four or five miles into the country, to attend her sister's children, who were under scarlet fever, no fever, however, being in her own neighbourhood. She was there only two days when she felt her throat getting uneasy, with symptoms of fever, and she returned home with a severe form of scarlatina. Her maid in the house in town, in two days after her return, was seized with it, likewise in a severe form. 2. Mr P. called on a Saturday forenoon for payment of an account, in a house in Thistle Street, where a person was ill with scarlatina. On the Sunday night following, his throat became uneasy with symptoms of fever, and on Monday forenoon he had a violent sore throat, and a purple cutaneous eruption, and sunk on Wednesday. 3. A gentleman, in whose neighbourhood there was no fever before or since, came from the country to see his children, who were ill with it, and who had been absent from home for six weeks. He arrived on Thursday; on Saturday his throat became uneasy, and on the following day the disease was established. 4. Mr L.'s children were sent to Fife, and had been there for six weeks previous to the disease attacking them. The maid-servant had gone a distance of some miles to attend her brother, who was under the disease. She came home at the end of a week, on a Monday night. One of the boys was seized on Thursday morning; and a second, who had arrived from Edinburgh on the Monday, was likewise seized on the Thursday evening. A third boy called to see them on the Friday, and in two days he was attacked

I have likewise observed in some instances, (more particularly since my attention was called to this subject by Mr Wood,) that when the disease has once appeared in a family, it has attacked the various members of it, in such rapid succession as, in my opinion, to show that the latent stage may be limited to two or three days. I may perhaps be permitted to adduce one or two facts illustrative of this remark.

1. In Mr ——'s family, a girl came home unwell from school. On Monday the scarlet fever was distinct upon her. On Thursday a second, and on Saturday a third member of the family was attacked.

2. Mrs —— was confined on a Saturday evening. On Monday her oldest child (a girl of three years) was attacked with scarlatina. On the Friday she herself was attacked with marked fever and debility, accompanied by a deep blush in the fauces, which continued for three or four days.

3. Mrs Captain M.'s oldest child was attacked on a Monday with scarlatinous sore throat and eruption. On the Thursday, Mrs M., who had passed through a severe type of scarlet fever in 1832, was herself attacked with the disease in a very violent form of sore throat. Mrs M.'s mother came on Friday morning to attend her, and on the Friday week she was seized with fever and great debility, followed by sore throat. In this last instance the latent period of the disease may possibly have extended to eight days.

4. A family at Newington consisting of seven individuals, (who all, with the exception of the mother, passed through the scarlet fever under my care in November 1835,) were again all attacked (the mother included) with the disease, in November of the present year; and in the following intervals of succession. 1. A child, three years of age, who had not been out of doors for five or six weeks previously, was affected with the eruption and sore throat on Thursday. On Friday a second was attacked; and before Friday sen'night the whole family were more or less severely affected with symptoms of scarlatina. Two of the girls, who had suffered under the congestive and more dangerous form of the disease in 1835, had their throats more severely affected than the others in this second attack, and presented some symptoms of delirium. In the case of the child first affected, it might be an interesting question to investigate how he came to be attacked with scarlatina, when there were no cases of the disease in the neighbourhood, and when he had not been exposed to its infection in any traceable way, and, indeed, as I have already mentioned, had not been out of the house for five or six weeks previously.

Degree of Contagiousness.—In twelve or fourteen different instances, in which there was ample opportunity for the spreading of contagion, I observed that when the disease began with the regular sore throats, unaccompanied with cutaneous eruption, it did not extend to any of the other members of the family; but whether this holds good in all cases I am not prepared to say. In some of the above cases, the sore throat was followed by swelling of the joints and dropsical affection.

In reference to the comparative contagious character of the different modifications or varieties of scarlet fever, it may not be uninteresting to remark here, that since I directed my attention to this subject during the latter part of the epidemic, I have noted down *twelve* different instances, in which, when the disease has appeared in a family composed of several susceptible young individuals, in the form of sore throat and fever *without* the cutaneous eruption, it did not spread beyond the person who was first affected. Thus:

1. A gentleman, in Leopold Place, had the sore throat and

fever well-marked, with extreme debility, but no eruption. The disease did not spread to the other members of the family.

2. A lady, in the Royal Terrace, had the sore throat without the eruption. It did not even attack the infant she was nursing.

3. A boy, in North Bridge Street, was laid up with malignant sore throat, without any cutaneous efflorescence. There were several other children in the house, none of whom caught the disease.

4. A little girl, in Jamaica Street, had the characteristic sore throat. There were five other children in the house, all of whom escaped.

5. A woman, in Keir Street, had malignant sore throat, but no eruption. The remainder of the family (six in all) escaped.

6. A boy, in West Heriot Row, was attacked with the sore throat. The disease did not spread to the other members of the family.

And so on with the six other instances to which I have referred, forming in all a body of facts which, if confirmed and increased by the observation of others, would tend to show that scarlatina, when it attacks the fauces alone, is less contagious than when it attacks both the fauces and skin.

Treatment.—In the treatment of scarlatina, different practitioners have occasionally run into the most opposite extremes of practice; some using in every case free, general, and local bleeding, and the strictest antiphlogistic regimen; and others as uniformly employing in every instance from the first, stimulants, and almost stimulants only. But certainly in treating this or any other disease, we ought not to prescribe for all cases on any such general and exclusive principles; but every cautious and prudent practitioner will assuredly treat each individual case according to its particular necessities and indications, according to the complications which may occur in different cases, or in the different stages of the course of even the same case; and according also to the general type or character of the existing epidemic.

The treatment that I have employed from the commencement of the epidemic, and which I found little occasion to change, has been in its general principles the following.

After, in the first instance, strongly inculcating attention to cleanliness, to keeping the patient cool, and his chamber well-ventilated, I have insisted on the antiphlogistic regimen being strictly followed out with regard to diet, and have in addition forbidden the use of all kinds of fruits. I have made it also an invariable rule to keep up a continued action on the bowels, during the whole course of the disease, with gentle purgatives. The medicines that I have principally employed for this pur-

pose have been combinations of calomel with rhubarb, scammony and James's powder, and infusion of senna with the sulphate of magnesia. Whenever the tongue puts on, in a very marked degree, the well-known and characteristic inflammatory strawberry appearance, I have deemed it necessary to act upon the bowels by mild means, as by castor oil, and warm emollient enemas. This point of practice I consider as of very great importance. The necessity of free purging has always appeared to me to be fully evinced by the very deranged state of the biliary and intestinal secretions, as manifested by the green, black, and tar-coloured evacuations which were produced.

In the further treatment of the disease I have generally acted on the skin with the spirit of Mindererus, or tartrate of antimony, in a mixture containing a quantity of nitrous ether.

I have also constantly employed either tepid sponging, or the warm bath itself, more frequently the latter. I have generally ordered the bath to be repeated twice or thrice during the day. It has appeared to afford great relief to the feelings of the patients, and was in many cases oftener repeated at their own urgent request. In using it the body was merely dipped in it for a minute or two each time, and then quickly and thoroughly dried. A longer immersion seemed to produce fainting, or a great tendency to it, followed by shivering. If there appeared to be the least tendency to much affection of the throat when I was first called, or at any period during the continuance of the disease, I always instantly opposed it by free bleeding from the external fauces, by means of leeches, repeated or not, according to circumstances. After the leeches dropped off, I have generally ordered a warm poultice to be applied to the parts, and have on many occasions, where the throat was much affected, continued a succession of them during the whole course of the disease, alternated with the occasional use of the mustard poultice.

As direct internal local applications to the inflamed ulcerated and sphacelating fauces, I have trusted principally to gargles composed of a solution of sulphate of zinc with some powder of carbon; and in other cases I have employed one of lime-water with a quantity of powdered cinchona diffused through it.

A decoction of bran and one of these gargles was employed repeatedly during the course of the day, and in children so young as to be unable to use them, I have myself applied them, or ordered them to be very frequently applied, during the twenty-four hours, by injecting them against the diseased surface of the internal fauces, by means of the common syringe. I have found this to be a certain and, at the same time, an easy method of applying washes and solutions to the internal fauces in

children, and one which is attended with comparatively but slight inconvenience to the little patients.

I never found it necessary to employ wine or stimuli of any description in any of the cases that I attended.

During convalescence, I have been careful to preserve the bowels in a favourable condition with the colocynth or rhubarb pill, and at the same time inculcated an adherence to the antiphlogistic regimen for some time, together with the most careful possible avoidance of cold. To insure this last important indication, I have generally insisted upon the necessity of my patients being provided with an under-dress of flannel before they left their beds. It is to the rigour with which these simple measures were enforced that I am inclined (as before stated) to attribute the small ratio of severe secondary affections that I have witnessed.

Four out of the seven cases of secondary anasarca yielded readily to a repetition of active purgatives, with small doses of the nitrate of potass, and powder of digitalis, and rubbing the surface of the body with hot spirits. One of the cases was attended with convulsion, great difficulty of breathing, and stupor. The urine was highly albuminous, and contained likewise blood to a certain extent. He was treated with the usual diuretics, sinapisms over the loins, friction with hot spirits, and a few leeches applied to the lumbar region, the state of his constitution not indicating the use of the lancet. This case was seen by Dr Christison, at whose suggestion diaphoretics were tried but without any marked advantage over the diuretics. The blood in the urine disappeared under the free use of the acetate of lead, and the patient is now in good health. The sixth case resisted this and every other treatment that was adopted. The patient, a boy of four years of age, presented no symptoms of internal inflammation, requiring the employment of general or local bleeding, but sunk under the dropsy in a chronic form. The seventh, which also proved fatal, has been already noticed.

Art. IV.—*Remarks on the Physiological and Therapeutical effects of Colchicum.* By Robert Lewins, M. D. Fellow of the Royal College of Physicians Edinburgh, &c. &c.

Men who really think for themselves know full well, that the trials of new remedies which are made by the profession at large are so superficial and inconclusive, as to be not worthy of the slightest attention when the value of such remedies are under discussion.—*Haden.*

Notwithstanding the strong recommendation of Baron Stoerck of Vienna, and the observations of Magendie, of the late Mr Haden and others, a great proportion of the medical profession in Great Britain, and I believe on the continent, are ignorant of the

medicinal virtue of colchicum, or at least underrate its efficacy, whilst many decry it as a drug of doubtful and dangerous character.

Two circumstances appear to me to have retarded the introduction of this agent into general use. It is one possessed of very active properties, and requires not only caution in its administration, but unwearied industry in watching its effects. He who prescribes colchicum must not merely order a certain quantity to be taken, and then leave his patient to his fate. The effect of every dose should be watched, and it must be increased or diminished, so as to secure the full effect of the medicine without the injurious consequence of an over-dose.

There is another cause which has contributed to increase the prejudice against colchicum. It is generally allowed that the active principle of the French nostrum, the *eau medicinale d'Husson*, so celebrated some years ago for the cure of gout, is the same on which the medicinal virtue of colchicum depends, and the former medicine has been, I think, improperly banished from British practice, as one dangerous and often fatal to those for whom it is prescribed.

A knowledge and recollection of the extraordinary physiological and therapeutical properties of the *eau medicinale*, and a belief that it and the colchicum owe their medicinal virtue to the same vegetable principle, induced me to think favourably of the latter medicine, and to investigate its effects; an investigation, which, step by step, led to the conclusion which I am desirous of communicating to my professional brethren.

Various preparations of *colchicum autumnale*, or of plants which the researches of modern chemists have proved to contain the same vegetable principle (veratria) have been recommended by physicians in all ages. Pliny appears to have been acquainted with the anti-arthritic virtues of hellebore,—and he enumerates epilepsy, hydrophobia, insanity, and the lousy disease, amongst the maladies which that medicine is capable of curing. Hippocrates has left as to the use and action of hellebore the following aphoristic rules; which it behoves us to keep in mind, and to consider whether or not they are applicable to modern medical practice, when veratria in any shape is administered.

"Ubi biberit quis elleborum, ad motiones quidem corporum magis ducit: ad somnos verò, et quietem, minus. Declarat autem etiam navigatio, quod motus turbat corpora. Quando vis magis ducere elleborum, moveto corpus: quando vero cessare, somnum facito et non moveto. Elleborus periculosus est sanas carnes habentibus: convulsionem enim inducit. Convulsio ab elleboro, lethale."

From what I have observed, I would conclude that there is most risk of danger from the violent action of any plant containing veratrine, in debilitated constitutions, particularly in in-

dividuals whose digestive organs are weakened by intemperance. When it really does mischief, it is not by occasioning convulsions, but by giving rise to inflammation in the bowels, or producing diarrhœa, or in fact cholera. Hippocrates here appears to use the word convulsion in a different sense from us.

Veratria was the active medical agent in a favourite anti-arthritic remedy of Paracelsus; and it formed the active ingredient in most or all of the prescriptions of the regular practitioners, and empirics of the last century, famous for the cure of gout, as will be seen by the following quotation from Quincy's Dispensatory, published in 1749.

"Radices, roots of,

"Hermodactyli, Hermodactyls. Casp. Bauhine calls this *colchicum radice siccata alba*, which is the meadow saffron; but many dispute whether it be of this kind or not; some taking it to be a species of the *Dens caninus*, others of the *Iris tuberosa*, amongst whom is Mathiolus; and others of the *cyclamen*. However this stands so much in the esteem of some writers, as to be dignified with the name of Anima Articulorum, the soul of the joints; because they believed it to be very efficacious in scouring the mucilaginous glands, and preserving them from such gritty matter as occasions the gout and arthritic complaints. This is of that kind of cathartics which exert not themselves but in the smallest passages; and therefore are slow in their operation, although of great consequence in their effects. The Augustan Dispensatory has a compound pill that takes it name from it, and it is a principal ingredient in the *pulvis arthriticus Turneri*, as likewise in some recipes of the *extractum radicis*, and other officinal compositions of the like intentions."

I have advantageously prescribed colchicum in its mildest form, that of an acetate, for upwards of nine years past, particularly in diseases of the heart, the result of which in such cases, I shall communicate upon a future occasion. At present I wish to speak of the effect of its more active preparations in acute diseases.

Observing the power which colchicum possessed of diminishing irritability in internal organs, and keeping in mind the wonderful effects of the *eau medicinale* in gout, it occurred to me that colchicum might be advantageously used in all or in many inflammatory diseases,—in fact, in all diseases where excessive excitement, whether of the nervous or sanguiferous system, prevailed,*—an idea which I subsequently found had been to a

* Colchicum will also be found to be a powerful anthelmintic. I have given it with benefit in jaundice, and would strenuously recommend a trial of this medicine in croup, prescribed in such a manner as speedily to bring the system under its powerful influence. In all inflammatory affections of the chest, and perhaps of the brain, or its investing membranes, I am convinced bleeding may frequently be, to a certain extent, superseded by the use of colchicum. In many diseases of the heart and large

certain extent entertained by Mr Haden, Mr Want and others. A great proportion of the medical profession, nevertheless, have never even used this article of the Materia Medica in any disease; and many of those to whom we are with propriety accustomed to look with respect in medical matters, are still not only ignorant of its properties, but of the quantities which can be given with safety or advantage. Of this we have an extraordinary proof in the London and Dublin Pharmacopœias, where, in speaking of the dose of the wine of the roots, and the tincture of the seeds, the former directs from one to two drachms, and the latter half an ounce, to be given for a dose. It is almost superfluous to remark that the latter dose, if it did not prove speedily fatal, would produce the most deleterious effects by its irritation on the intestinal mucous membrane, and the consequent prostration of the nervous system, in nineteen persons out of twenty, who may be so unfortunate as to have their medical attendants guided in this respect by the Dublin Pharmacopœia.

It may appear strange, but it is not less true, that in the present state of medical science, the profession as a body should be ignorant even of the proper dose of a medicine which, in one form or other, has been used in all ages. This circumstance, no doubt, arises, as far as the wine of the Root is concerned, from its being prepared from the root taken out of the ground at an improper season; hence we may have a drug possessed of most active properties, or, it may be, almost totally inert. Fluid preparations of Meadow Saffron should always be made from the seeds of the plant, which will secure a preparation of uniform strength and activity. To the vinous tincture of the seeds of colchicum alone are my present observations applicable.

Before venturing to use this powerful medicinal agent freely, I instituted a series of experiments to regulate my practice * as to the extent to which the dose might with safety be increased, of which the following is a narrative.

It may, however, be premised, that I had frequently taken from 40 to 65 or 75 drops myself without any sensible effect, except a feeling of temporary depression of strength.

Case 1. R. L. aged 18, student of medicine, when labouring under slight sore throat, took 50 drops of *Vin. Colch.* at nine A. M.—at half-past twelve no effect had been produced, and he took 80 drops more. At a quarter before eight P. M. when scarcely any sensible effect had ensued, he took an additional dose of 20 drops. Quarter past eleven P. M. only a slight degree of nausea. 100 drops had thus been taken before bed-time in the course

arteries, it is a most valuable medicine, as I shall endeavour to prove in a subsequent communication.

* I had frequently heard of very violent effects being produced by the above-mentioned medicine; and it is well known that a dose of two drachms proved fatal to a patient in a public hospital lately.

of twelve hours with almost no sensible effect. He went to bed about midnight; slept well; and awoke about six o'clock next morning. At half-past eight, 60 drops more were taken. He breakfasted soon afterwards, sparingly, appetite being somewhat impaired. At half-past nine a sudden call to stool was followed by a very copious alvine evacuation, with considerable griping pain; and about a quarter of an hour afterwards he experienced in the large intestines a feeling of great commotion, which was immediately followed by six very copious watery evacuations of a yellow colour.

In this case, in which 160 drops were taken in the course of twenty-four hours, a slight degree of nausea only was experienced during the first twelve hours, and the sleep was undisturbed. After the dose of 60 drops on the following morning considerable nausea was felt, but no vomiting took place. The bowels, as has been already mentioned, were freely moved seven times in the course of the day; the appetite was impaired, and a feeling of weakness continued for twenty-four or forty-eight hours.

Case 2. W. F. student of medicine, aged 17, when in perfect health took at seven o'clock A. M. 70 drops of the vinous tincture of the seeds of meadow saffron. Not being in any way affected by this dose, he swallowed, at half-past ten, 30 drops more. About half-past eleven he felt slight sickness, but at half-past twelve took an additional dose of 30 drops of the colchicum wine. Sickness increased, but neither vomiting nor purging supervening, in three hours afterwards he took 40 drops more, making 170 drops in nine hours. About two hours after the last dose severe sickness occurred, followed by a copious alvine evacuation. At nine o'clock P. M. he had another call to stool. He slept well; but on awaking next morning felt still sick and faint; had four alvine evacuations in the course of the day, watery and of a yellow colour. A little after 8 A. M. vomited upwards of a quart of thick whitish matter, felt some desire for food, but was unable to eat. At eleven A. M. vomited a quantity of viscid greenish matter; soon afterwards vomited again. At three o'clock rejected some brandy and water which had been taken. At four vomited again.

Next morning felt rather sick, and no inclination to eat. Sickness gradually subsided in the course of the day.

In this case, in which 170 drops of the *Vin. Colch.* were taken in the course of nine hours, it produced, with considerable nausea and much vomiting, six copious alvine very watery evacuations without pain. The urine was of a deeper colour than usual, and deposited a sediment. Little effect appeared to be produced upon the pulse.

Case 3. J. L. aged 15, took 40 drops of *Vin. Colch.* for the first time at nine A. M. No sensible effect having ensued,

he took at twelve another dose of 30 drops. Two hours and a-half after it had been taken he felt rather squeamish. At four P. M. he took 30 drops more, and about a quarter of an hour afterwards was still more sick. 100 drops had been taken in the course of seven hours without producing either purging or vomiting. At seven P. M. 30 drops more were swallowed; severe sickness was experienced soon afterwards. About ten P. M. he vomited three different times. Shortly after he took a little food, which was immediately rejected. In the course of ten hours he took 130 drops; vomited four times, and bowels were moved only once. Slept well; next morning felt sick, and had no appetite. In the course of the day, however, the sickness subsided, and at the usual hour of dinner he was in every respect quite well.

Case 4. F. L. aged 12, at half-past nine A. M. took 30 drops of *Vin. Colch.* Little sensible effect was produced throughout the day. At 5 P. M. took 30 more; dined immediately afterwards with his usual appetite; walked from Leith to Newhaven and back in the evening, a distance of about three miles. At eight o'clock P. M. felt sick, and vomited half an hour afterwards, very copiously, and easily. He had a desire to eat immediately afterwards, and took an egg, which he enjoyed; fell asleep soon afterwards, and enjoyed a night of undisturbed repose. A quarter of an hour before seven of the following morning (ten hours after the first dose) he had a copious alvine evacuation, and a second soon afterwards. Before evening nine watery stools ensued, without any pain from the action of the medicine.

Case 5. J. B. aged 17, in perfect health took 40 drops of *Vin. Colch.* at eight o'clock at night. No sensible effect followed the dose, and at eight the following morning, took 30 drops more; slight sickness in the forenoon, but no other effect; about three P. M 30 drops were taken. The bowels were moved at six o clock for the first time. In the course of the evening slight vomiting occurred several times, and he fainted once after a copious alvine evacuation, but soon recovered, and was cheerful immediately afterwards. The bowels were moved five times before bed-time; he slept well; and though he felt little inclination for breakfast at the usual hour next morning, he became hungry at midday.

At a subsequent period, some ten days afterwards, having taken 70 drops at six P. M. he became sick in the night. At one o'clock A. M. was very sick, and vomited bile; continued to experience much nausea, and to vomit occasionally until four o'clock P. M. Upwards of a pint of bile was ejected from the stomach between one and nine o'clock A. M. He had headach in the course of the day; at dinner eat little; just able to taste tea at seven P. M. Next morning he was nearly well, and able to go out at noon, being perfectly free from every uncomfortable feeling. Pulse dur-

ing the first twenty-four or thirty hours was feeble and below the natural standard; it afterwards rose to 100, and continued so for twenty-four hours, but there was no symptoms of illness except a feeling of debility.'

Case 6. R. B. aged 10, at ten o'clock A. M. took 20 drops of *Vin. Colch.*; no sensible effect followed, and at half-past four took a second dose of 15 drops. No sensible effect from that quantity during the day. Next morning two motions took place, but without sickness or nausea. At half-past eleven A. M. took 25 drops, and at half-past four 20 more. No effect whatever was produced until about an hour after the latter dose, when the bowels were moved, and twice afterwards, between six and seven o'clock, at which time he also vomited. Sickness and vomiting not very violently continued all evening. In the night he vomited twice (viscid bile) and had three additional motions in the bowels; in all nine operations. The sickness continued from seven the first evening until ten o'clock next forenoon (about fifteen hours.) Slept pretty well, although frequently sick and awake in the night. Little desire for food until the following day, since which time he has been free from sickness, but not inclined to get out of bed; took some coffee at twelve. The pulse, whilst the nausea continued, was feeble and less frequent than natural. Eighty drops were taken in the course of twenty-nine hours and a-half.

Satisfied by the above experiments as to the extent to which the *Vinum Colchici* might be safely administered within a given period, I prescribed it in six cases of fever, successively.

Case 1. A. S. maid-servant, aged 36. Sunday, April 10th. Complains of loss of strength, headach and pain in the back; tongue furred; pulse 100; no appetite; thirst urgent; slight delirium. The complaints were of seven days standing; was cold and shivered at first; confined to bed since Thursday last. Took a dose of salts on that day, since which time the bowels have not been moved. Catamenia regular. Thirty drops of colchicum wine were directed to be taken every three hours; but if it occasioned vomiting or purging, the dose to be reduced to one-half, and the interval doubled.

Monday, April 11, A. M. Vomited rather violently after the first and second doses of thirty drops, since which only fifteen drops have been given every six hours. Bowels moved twice; stools bilious. At four o'clock in the morning began to perspire profusely, when the headach left her, and she has continued free from it all day. Skin still very moist; pulse 88; tongue moist, and much cleaner. The wine was continued at the rate of ten drops every three hours. Tuesday, April 12. Slight vomiting and frequent loose bilious-looking stools since

yesterday. No headach; pulse 88; tongue clean and moist.—The meadow saffron wine was continued.

April 13. Desire for food returned yesterday afternoon. Eat some potatoes, which were soon afterwards rejected by vomiting; headach returned and continued for several hours, last night; belly continues open; stools watery, and of a greenish colour; pulse 84; tongue clean.—The colchicum wine was continued.

April 14. Still distressed with headach.—The colchicum wine was continued.

April 16. Has taken the medicine in small doses, from five to ten drops once in three or four hours. Belly open; pulse 84; tongue clean; perspires occasionally; headach gone. The wine was continued in doses, according to its effect on the stomach and bowels.

April 17. Slept well; bowels open; pulse 84; tongue clean; nausea subsiding.—The wine was continued.

April 18. During the last forty-eight hours she took the colchicum wine as directed, and used altogether half an ounce in the course of a week, but no other medicine. Free from every complaint except weakness; appetite good; pulse 76; tongue clean. To have mild nourishing diet.

April 20. Continues convalescent, but complains of great weakness. She was now directed to take, three times a day, a wine-glassful of infusion of quassia with dilute sulphuric acid.

April 25. Free from complaint.

Case 2.—A. Macgregor, maid-servant, aged 22.

April 24. Was taken ill this morning with symptoms of fever, shivering, headach, and prostration of strength; still cold. (Mid-day) pulse 80; had vomited several times; tongue dry and brown; catamenia regular.—Forty drops of colchicum wine were ordered to be taken immediately, and thirty drops every three hours afterwards, until it acted on the stomach or bowels.

9 P. M. Has taken 130 drops without producing vomiting or purging, but feels sick; headach still violent; pulse 115. The colchicum wine was continued at the rate of thirty drops every three hours.

April 25, 11 A. M. Has taken 280 drops since yesterday at 1 P. M. At ten o'clock last night began to vomit, since which time she has vomited repeatedly green viscid bile, (in quantity half a hand-basin-full;) bowels moved twice; appearance of evacuations not examined; headach relieved; pulse 66; tongue clean and red; feels weak, and complains of great pain in her back; countenance greatly improved. The wine was continued at the rate of fifteen drops every three hours.

April 26. 4 P. M. Has vomited much during the forenoon.

complains of great sickness, but headach almost gone; pulse 72; tongue cleaner; bowels open.—The colchicum wine was intermitted.

April 27. Headach quite gone; feels well; pulse 100; face florid, as usual; tongue clean; bowels moved once to-day. *Int. medic. omnia.* Has taken in all 335 drops of the *Vinum Colchici* in the course of three days.

April 28. So well as to be able to leave her master's house, on foot at nine o'clock last night, to go to her mother's; slept well; pulse 84; tongue clean; headach and pain in her back quite gone, but feels weak; bowels not moved to day.

April 29. Feels much better; sickness quite gone; has gained strength; no pain in her head or in any part of her body; slept perfectly sound; tongue clean; bowels not moved either yesterday or to-day; pulse 80. She was directed to take an ounce of castor oil.

Without the use of any other remedy she was able to return to her usual duty as house-maid, in the course of five or six days, but at that period was still weak. She was directed to take, three times a day, a wine-glassful of infusion of quassia and dilute sulphuric acid.

Case 3.—Mrs W. aged 57.

May 7. 10 P. M. Has been subject to attacks of palpitation, for which, in the course of the last six months, she has taken colchicum, principally in its mildest form, an extract of the acetate, but not lately. Had a slight attack of palpitation yesterday, which, however, did not last long. To-day was affected with violent headach, and complains of general weakness, pain in the back and excessive thirst; tongue very dry but not furred; pulse 100, and full; the bowels had been moved three times to-day, from a dose of *supertart. potass.* which she had taken before I saw her. The legs and feet were ordered to be bathed in warm water.

May 8. On getting out of bed last night, she had a smart shivering fit. Slept little, and perspired slightly in the night; headach continues; feels very weak; great pain in the back and loins; no appetite; thirst excessive; tongue very dry; pulse 100 and full; respiration hurried; bowels not moved to-day. —*Habeat Vin. Colch.* ℥ss. *cujus* gtt. xl. *sumat quam primum et* gtt. xxx. *quaque hora tertia donec supervenerit vomitus vel catharsis.*

10 P. M. Has taken 100 drops of the *Vin. Colch.*; feels very weak, eructates violently and very frequently; has vomited two or three times; headach relieved; pulse 96, and weaker; pain in the back diminished; tongue slightly moist; perspiring a little.—*Cont. Vin. Colch.*

Monday, 8 o'clock A. M. Has been very sick all night, and

vomited frequently; bowels moved four times; stools watery, with masses of feculent matter floating therein. The matter vomited has the appearance of bile mixed with mucus. The dejections and matter vomited fill an ordinary chamber-pot. Pulse 98, and still less full; tongue improved in appearance. The medicines were stopped, and mild farinaceous food of any kind was allowed.

May 9. 4 P. M. Slept tolerably well last night; has been very sick all day; vomited a considerable quantity of bilious matter; bowels moved four times since yesterday; evacuations watery and rice-looking; pulse 100; tongue drier than at last visit, with a white fur round the edges. VS. b. ad ℥x.

9. P. M. Blood slightly buffy; has been easier since last visit; vomited only once, and that after taking tea; bowels once moved since four o'clock; pulse 76; perspiring freely; tongue moist. On the morning of the 10th she was greatly relieved; pulse 76; tongue moist; no vomiting or purging; has taken some arrow root.

10. P. M. Does not feel so well as in the morning; complains of pain in the back and restlessness; pulse 96; no vomiting or purging.

℞. *Haust. Anodyn.* c. gtts. xx. *Acet. Opii.* c. h. s.

Wednesday, May 11, *mane.* Has had a good night; pulse 90; tongue clean in the middle, but covered with white fur on the sides.—*Int. Medic. omnia;* farinaceous diet to be continued.

10 P. M. To-day there has been occasionally slight delirium; pulse 90; tongue clean in the centre, and moist, but a thick white fur round its edges; complains of slight pain in the belly; no inclination to sleep.

℞. *Tinct. Opii Camphorat.* ℥i.; *Acet. Opii.* gtts. xv.; *Vin. Colch.* gtts. x.; *aqua menth. p.* ℥i.; M. Sig. c. h. s.

Thursday, May 12, *mane.* Slept well last night; perspired pretty profusely; no tendency to delirium to-day; pulse 84; tongue improving in appearance, but patches of white fur still perceptible on its edges and posterior part; no motion in the bowels; complains of rheumatic pains in the right arm and leg.

℞. *Pulv. Rhei.* ℈i.; *Carb. Magnes.* gr. x; *Vin. Colch.* gtts. xl.; *Aquae fontis* ℥i. M. Sig. C. St.

Thursday, May 13. Medicine operated well; has continued easy since yesterday; pulse 72; tongue almost clean.

May 14. Better in every respect, but feels weak; pulse 72; appetite rather keen. To be confined to farinaceous food.

May 15. As yesterday.

May 16. Continues to improve.

May 17. In every respect well, except that the bowels are rather open.

May 18, *mane.* Slept well; no motion in the bowels since yesterday; pulse 82; tongue very red and dry.

Vespere. Has had a good deal of pain in the belly, (which is increased by pressure,) and also in the back during the day; bowels several times moved; troubled with flatulence; pulse 88; tongue excessively dry, and of a blood-red colour. It was ascertained that she had taken some whisky toddy and beef-tea yesterday, contrary to advice.

℞. *Opii puri* gr. ii.; *Calomel* gr. ii.; *M. Pil. ft. C. St.*

All stimulating food or drink strictly prohibited.

May 19, 8 A. M. Slept well; greatly relieved: pulse 78; pain in the bowels almost gone; tongue dry; belly bound. Half-past 9 P. M. return of pain in the bowels; tongue dry and red: pulse 72; bowels three times moved to-day. *Rept. Pil. Opii, &c.* C. h. s.

May 20. Slept well; pain in the bowels quite gone; tongue dry but clean; pulse 82; slight attack of palpitation to-day. *Rept. Pil.* c. h. s.

May 21. Continues easy; slept well; pulse 76; tongue becoming moist, and much less fiery in appearance; appetite improving; bowels not moved to day.—*Interm. Pil.*

May 22. Bowels were moved twice yesterday after my visit; stools by report slimy; had a good deal of pain in the belly early this morning, and three or four times since; stools feculent, and light-coloured. *Hab. Pil. Op. u. a. h. s. et mane* ℞. *Ol. Ricini* ℥i. *cum.* gtts. viii. *Acet. Opii.*

May 23. Feels well; bowels only moved once since yesterday, but very fully; tongue natural or nearly so; pulse 72.

May 24. Continued squeamish, but no further operation of the medicine, until this morning, when it operated twice. Stools massy and light-coloured; tongue still dry but very clean; pulse 72; appetite returning, and feels a desire to take a glass of ale or wine. To have the former and an egg.

℞. *Ext. Colocynth.* ℈ii.; *Ext. Hyoscyami* ℈i; *Calomel:* gr. vi. *Misce et in pil.* xii. *divide.* Two to be taken occasionally, when necessary.

May 25. Convalescent.

Case 4.—Mrs M. aged 33, May 10.

At present nursing a child, (infant four months old) was affected suddenly yesterday with coldness and shivering, followed by pain in the back, violent headach and prostration of strength; pulse 92; tongue dry, brown in the middle, surrounded with white fur; bowels bound.—℞. *Vin. Colch.* xl. gtts. et *Rept.*

gtts. xxx. *quaque hora tertia donec vomitus vel catharsis supervenerit.*

May 11. Immediately after taking the first dose of the *Vin. Colch.* felt uneasiness in the bowels, and soon afterwards had a copious alvine evacuation, watery, but feculent. Took thirty drops for the second dose, three hours after taking the first; no motions in the bowels since, nor sickness, nor vomiting, but perspired profusely; headach greatly relieved; tongue cleaner and more moist; pulse 96; thirst as before. *Sumat* gtts. xxx *Vin. Colch.* Secretion of milk greatly diminished. Half-past 11 P. M. Has taken 100 drops in all; no vomiting since last visit, but the bowels have been very open, moved twelve or fifteen times; evacuations at first watery and feculent, but latterly have been watery without feculent matter or odour; headach almost gone; pulse 74; tongue almost natural in appearance.

℞. *Tinct. Opii. Camph.* ʒi. *Acet. Opii.* gtts. xviii.; *aqua fontis* ℥i. *Misce* Sig. c. h. s.

May 12. Slept pretty well last night; continues free from headach; pulse 68; bowels continue very open; secretion of milk scanty. The draught was repeated, and chicken broth and rice was ordered.

May 13. A. M. Slept well; perspired profusely in the night; free from every complaint except weakness; pulse 72; tongue quite clean; no motion in the bowels since yesterday, nor irritability of stomach; considerable desire for food Secretion of milk increased. The medicines were stopped, and arrow root with port wine allowed

May 14. Convalescent.

May 16. Continues free from symptoms of disease, but still weak; pulse 62; bowels regular; sleeps well; appetite indifferent; no thirst; tongue clean.—Two grains of sulphate of quinine were directed to be taken three times a day in jelly.

May 18. Health improves; feels much stronger; pulse 72; bowels regular. From this period she improved daily.

Case 5. J. E. aged 19.

May 5, 1836. Was taken ill on Tuesday (3d May) with shivering, headach, pain in the back, prostration of strength; pulse 80. Took a dose of castor-oil yesterday; attempted to attend to his ordinary duty to day, as a joiner, but was not able.

He was directed to take immediately 60 drops of the meadow saffron wine, and 40 drops every third hour until vomiting or liquid motions should ensue.

May 6. A. M. Has taken of colchicum wine 220 drops, without vomiting or purging being produced; slightly sick in the morning; pulse 72; urine turbid.

6 P. M. At half-past 1 P. M. was sick, and vomited three times in the course of the afternoon. Has been four times to stool; evacuations of an orange colour. Ordered to continue the colchicum wine in doses of 30 drops every three hours; has already taken 300 drops.

May 7, A. M. Very sick all night, and since six this morning has vomited nearly an ordinary wash hand basin full of greenish coloured, but not viscid fluid. Since last report has had frequent calls to stool; evacuations watery, at first greenish, afterwards of an orange colour; headach greatly relieved; tongue clean; countenance cheerful; temperature natural; pain in the back gone; pulse 100 sitting, standing 110; after being about ten minutes in the horizontal posture it fell to 62. Has taken half an ounce of the *Vinum Colch.* in the course of forty-eight hours.

May 8. Vomited none during the afternoon of yesterday; went early to bed; was sick and vomited occasionally in the night, but no motions in the bowels. Called to stool about 8 o'clock this morning, and nine times since; appetite not much impaired, but vomits immediately after taking food; tongue clean. To take mild nourishing food of any kind.

May 9. Feels much better; has neither purged nor vomited since last report; slight headach this morning.

May 13. For several days after last report continued free from every symptom of disease except weakness. Went to Edinburgh on the 11th on foot, and walked about seven miles. Headach and excessive weakness was the immediate effect of this imprudence; pulse 100 and full; tongue furred. He was directed to take immediately forty drops of colchicum wine.

May 14. No vomiting after the medicine, but bowels have been moved nine times; stools watery; pulse 104; tongue clean. —Medicine was stopped.

May 15. Feels much better; slept well; pulse 86; tongue clean; bowels moved once since yesterday.

May 17. Free from every complaint but weakness. For this he was directed to take three times daily a wine-glassful of infusion of quassia, acidulated with dilute sulphuric acid.

May 16.—Continues to recover.

May 20.—Free from complaint, and returned to his ordinary occupation.

In the prospect of resuming this subject in a subsequent number of the Journal, I shall conclude this communication by remarking, that, from the phenomena and results of the cases now adduced, I am convinced we may more certainly cut short

fever, or at least break its force, by the judicious administration of colchicum, than by any other known means. I by no means, however, recommend that it should be trusted to exclusively in fever. Other medicines and means may, if deemed necessary or advisable, be employed, such as blood-letting, antimonials, the warm-bath, &c. I, however, am disposed to think that these will seldom be required, if colchicum be boldly but prudently prescribed in the early stages of the disease. It is corroborative of my opinion, as to the efficacy of this potent drug, that its action on the animal economy is consistent with its therapeutical agency. The immediate effects produced by colchicum on the stomach, the liver, the skin, and on the circulation, are such as would lead us, *a priori*, to expect that relief would be given to that state of the system which the most rational theory of fever presumes to exist.

Quality Street, Leith, Feb. 1837.

Art. V.—*Physiological Observations on the Pulsations of the Heart, and on its Diurnal Revolution and Excitability.* By Dr Knox. (Read before the Royal Society in Edinburgh.)

More than twenty-two years have elapsed since my attention was first turned to the physiological history of the pulsations of the human heart and arteries. The investigation was an experimental one, and led to conclusions which were deemed satisfactory by many physiologists, and even novel by some; a rare instance of good fortune in respect to them, since the experimenter was still alive.

A very extended criticism, favourable to a degree far beyond the merits of my original papers, appeared in a foreign journal, whose name I have in vain endeavoured to recollect; thus without a reference to it, it is impossible for me to say from recollection, whether the very candid author (a German) of that critique added much that was new to my discoveries, or contented himself merely with their verification; but this I do recollect, that he considered the physiological conclusions as perfectly legitimate. Dr Elliotson, whose name stands so deservedly high as a skilful practical physician and most learned writer, (merits so opposite in character and so difficult to attain) has honoured me with a passing notice in a foot-note to his first edition of a translation of Blumenbach's Physiology, and the opinion he there expresses is, that my doctrines of the pulse, if well founded, are totally subversive of the Cullenian doctrine of simple fever, and, (what I consider more worthy of attention,) opposed to the views of the great Haller.

My first memoir was published in the Edinburgh Medical and Surgical Journal for 1815. The original observations were extremely numerous, made cautiously and without a bias. I shall therefore, having every confidence in them, first, re-state the results then obtained, compare them with what had been done previously and since, and finally, repeat them with views as free of bias as formerly, but matured, it is to be hoped, by an experience of more than twenty years passed exclusively in the exercise of my profession.

It is but doing an act of justice to myself to state, that when I published my original papers on the pulse, I did not feel myself called on to publish more than what I had myself observed. The fashion of adding what is misnamed the "literature" of a subject to my own observations did not prevail then so much as now; and in publishing at that time the result of my inquiries and observations, it did not appear to me necessary to go back to Hippocrates and Galen, Albucasis, Hildanus, Guy de Chauliac, and a host of names so easily quoted even without the trouble of consultation. To me, at that time, it was a question of exceedingly trifling import who first observed, who last; but now that the question of priority has been agitated before a numerous public association,* I cannot pass over altogether in silence this the least profitable part of the inquiry.

In republishing a brief abstract of my first memoir on the pulse,† and the result arrived at, I feel it to be but justice to myself in the first place to compare them with the opinions of a very late observer, who, having gone without doubt unconsciously over the same ground, has arrived at conclusions so strictly resembling my own in most respects, as to give me the greatest confidence in the accuracy of my original observations.

The author I allude to, Dr Graves, who, in a paper "on the effects produced by posture on the frequency and character of the pulse in health and in disease," published in 1830, has reproduced, nearly word for word, the results obtained by me in 1815, and even some of my conjectures; a coincidence extremely satisfactory to me, since it would seem that Dr Graves had never read my memoir. I am indeed aware, that of late it has

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* British Association held at Dublin.

† By "pulse" I mean of course the pulsations of the heart, felt for convenience sake in the radial artery at the wrist. The arteries do not pulsate, so that there is no such thing as arterial pulsation properly speaking. Hence I have often read with surprise a passage in Mr Harison's very excellent work on the arteries, in which the author speaks of "restoring the pulsations of the humeral artery by bending the arm." This excellent anatomist surely must know that neither bending nor extending the arm can affect in any way the course of the blood in the artery. He evidently mistakes the *locomotion* of the artery for the heart's pulsations. There are two or three physiological errors included in the short passage I allude to.

become usual to reprint the views and even original experiments of others without the smallest acknowledgment of the source whence they were derived, and this, too, without putting themselves to the trouble of altering or mystifying the original text, in order to prevent the reader tracing the plagiary to its source but I am very far from believing that in the present instance there are any grounds for such a suspicion.

"On the relation subsisting between the time of the Day and various functions of the Body; and on the manner in which the Pulsations of the Heart and Arteries are affected by Muscular exertion. By Dr Knox. *Edin. Med. and Surg. Journal*, 1815.

"1*st*, During the morning the mere change of posture from the horizontal to the erect renders the pulse more frequent by about 15 or 20 beats. At midday the increase is about 10, and in the evening 4 or 6."

"2*d*, Were it allowable to apply the rigorous language of calculation to a science which cannot be called exact, we should be disposed to say that such increase in the frequency of the pulse is in a direct ratio of the debility. Hence in fever the slightest change of posture (as from the horizontal to the erect) is often productive of an incredible velocity of the pulse."

3*d*, The frequency of the pulse on a change of posture is nearly in the direct ratio of the debility of the person. This fact may ultimately prove a valuable asthenometer."

"4*th*, On this principle we may explain satisfactorily, I think, many of the supposed stimulant effects of foxglove, &c."

"On the Effects produced by Posture on the frequency and character of the Pulse in Health and in Disease. By Dr Graves.

Dublin Medical Journal, 1830.

"1*st*, In healthy persons, the pulse in the erect posture is more frequent than in the horizontal, from 6 to 15 beats in the minute."

"2*d*, In patients labouring under fever, or in a debilitated state from any other cause, the difference in the frequency of the pulse caused by changing from the horizontal to the erect posture may amount to 30, 40, or 50."

"3*d*, The greater the debility of the patient the more frequent does his pulse become on change of posture."

"4*th*, Authors who have written concerning the effects of digitalis, &c."

Several other passages might be cited in order to show how exactly the two observers had travelled over the same ground, and, what is satisfactory enough to reflect on, had arrived at precisely the same conclusions. There are two points, however, touched on by Dr Graves which I do not as yet fully understand. Frst, it is said, that in hypertrophy of the heart there is no differential pulse, or, in plain language, the action of the heart is not quickened by a change of posture. This I at present, for reasons to be shown afterwards, do not believe. The second is a curious experiment made by Dr Graves, to ascertain what would be the effect of counting the pulse of a person placed on the top of his head. I confess I never thought of this posture, being one I could not myself have remained in for an instant without danger of apoplexy; but there are heads which will stand much bad usage.

Dr Graves further believes, that when the pulse rises on a change of posture from the horizontal to the erect, it is not the muscular exertion which causes this. I adhere to an opposite opinion, for reasons to be more fully explained in the third part of this essay.

My original papers touch on numerous other points in the physiological history of the pulse, with many of which Dr Graves seems to have been unacquainted, such as the diurnal excitability and numerical revolution of the pulse; the effects of powerful and moderate stimulants, of strong exercise, &c.; these, therefore, it becomes unnecessary to notice in this place.

Dr Graves, to whom my researches into the physiology of the human pulse were unknown, seems also to have been unacquainted with the writings of Dr Bryan Robinson, who *originally*, in the strict sense of the term, went carefully over the same ground about a hundred years ago, arriving at results, differing, it is true, in certain respects from those of more modern observers, but yet agreeing with them in many essential points; and therefore anticipating them, as may be remarked I trust without giving offence to any one, by the trifling period of a century. Yet even he does not appear to have been the first who endeavoured to obtain the "constants," if I may say so of the human pulse. M. Quetelet assures us that we owe this to Kepler.* It will be sufficient for our purpose that we adopt Dr Robinson's essays as a starting point. By a brief analysis of his observations and experiments, the subject may readily be brought down almost to the date of my first memoir. From this period questions previously considered as simple were proved to be complex, and a literature was added to the subject, whether profitably or not, I may perhaps consider at some length in a concluding analysis.

Of Dr Bryan Robinson† some might deem it sufficient merely to quote a passage in his preface; "Sir Isaac Newton discovered the causes of muscular motion and secretion; and likewise furnished materials for explaining digestion, nutrition, and respiration." With some this passage would be decisive as to his views, and as to what was to be expected from his writings. But this would be doing his ingenious work great injustice. Though based on false views of the animal economy, it contains several perfectly original observations; above all, it contains the attempt to apply the numerical method to physiology, and this attempt alone merits notice.

Dr Robinson, although agreeable to the fashion of his day,

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* Essai de Physique Sociale, p. 50.

† A Treatise of the Animal Economy. Dublin, 1732.

he considered mathematical reasoning as the soundest basis for a physiology of animal bodies, did not despise or neglect the proofs by experiments.

"I took" says he,* "the pulses in a minute, and measured the lengths of a great number of bodies. I took the pulses when the bodies were sitting, that they all might be situated alike with respect to the horizon; and in the morning before breakfast, that their hearts might be as free as possible from the influences of all disturbing causes; and when I had got a very large stock of observations, I took the means of the pulses." But unfortunately he has not published the tables of observations,—a great neglect in an original observer, thus rendering it impossible for future experimenters to verify his observations. Instead of this he says that he found those means "to be nearly as the biquadrate roots of the cubes of the lengths of the bodies inversely." Language of this kind has happily disappeared from most modern physiological works.

Dr Robinson does, however, give one table to show the near agreement of the pulses from observation with the pulses by the theory.

TABLE I.

Ages in years.	*Length in males.*	*Pulse from observation before breakfast, and sitting.*	*Pulse by theory.*
	72	65	65
	68	67	68
	60	72	74
14	55	77	79
12	51	82	84
9	46	90	91
6	42	97	97
3	35	113	111
2	32	120	119
1	28	126	132
½	25	137	144
0	18	150	184

But the most important conclusions arrived at by Dr Robinson, seem to me to have been drawn from the following series of observations.

TABLE II.

	Morning.							Mean.	Afternoon.								Mean.
Hours.	8	9	10	11	12	1	2		3	4	5	6	7	8	9	10	11	
Pulse of A.	65	67	70	73	71	69	70	70	77	77	77	77	76	76	74	74	76	76
Pulse of B.	66	71	72	68	69	67	67	68¼	75	81	84	81	79	77	78	78	79	78

This table contains "the number of pulses in a minute of two healthy men, A. and B. when sitting from eight in the morning to eleven at night. These numbers are means drawn

* A Treatise of the Animal Economy, Dublin, 1732, p. 132.

from a large number of observations; those of A. from the observations of twelve weeks; those of B. from the observations of three weeks. A. eat his breakfast between nine and ten, B. his before nine; they both dined together at two. B. eat more plentifully than A. and they eat little or no supper."

The conclusions Dr Robinson drew from this series of observations were, that the pulse is slower in the morning than at any other time of the day. The imperfect nature of the details unfortunately renders the table of little use. It is not stated for example how the persons were employed through the course of the day, whether writing, reading, or actively engaged in business. Neither the temperature nor the season of the year have been noted, nor the kind of food, and more especially what drinks were taken. The constant increase of pulse from two to eleven P. M. argues a constant stimulation from some cause or other. Now that cause is not stated.

Dr Robinson was aware of the influence of the mind over the pulse, and the power of exercise to quicken the pulse. "A strong extension of the legs and arms by the power of the will has quickened the pulse twenty beats in a minute, and at the same time made it so low that it could scarcely be felt." This implied, according to my views, that the person was unwell. I know not why modern observers have endeavoured to keep out of view, that the very slightest muscular exertion quickens the pulse; even the action of writing does this to a very great extent; sitting upright, instead of leaning on a desk or table, quickens the pulse; the keeping the spine erect, or allowing it to lean forward, affects it in the same way. These facts will be explained more fully afterwards.

He even seems to have endeavoured to ascertain the ratio of pulse produced by exercise. "The pulses in a minute (he observes) of a man, lying, sitting, standing, walking, at the rate of two miles in an hour, at the rate of four miles in an hour, and running as fast as he could, were 64, 68, 78, 100, 140, and 150 or more." "When a body stands up (he observes) the pulse begins to grow quicker the very instant the body begins to rise."

From this remark, coupled with numerous others to the same tenor throughout Dr Robinson's work, it may be gathered with how little truth, the title of "discoverer of the human differential pulse," can be given to Drs Macdonell, Sanders, or to any other modern observer.* Indeed, nothing can be clearer than Dr Robinson's announcement of these discoveries on the pulse. He attempted to measure the effects, which the depri-

* Transactions of the British Association in Dublin, 1835.

vation of air to the lungs has on the pulse; he experimented on dogs, to ascertain the fact, and observed in himself that on emptying his lungs of air as much as he could, and then stopping his breath, the pulse became small and quick, with a kind of trembling convulsive motion, in less than half a minute of time.

Finally, he compared the number of pulsations and inspirations together, and considered them to be in a minute, as follows:

Pulses,	65	72	116
Inspiration,	17	19	30

From these data I venture to draw the following conclusions:

1*st*, That Dr Bryan Robinson was the discoverer of the "differential pulse in man;" that he described it perfectly, and ascribed it to its real cause.

2*dly*, That he appreciated correctly enough the influence of food, and other disturbing causes of the heart's action, but that he knew nothing of the precise nature of the laws regulating these actions, not having submitted them to any statistical inquiry.

3*dly*, He first suspected and proved indisputably, that from birth to adult age, the rapidity of the pulse constantly declines, and he has given an accurate statistical table to prove this.

4*thly*, He endeavoured to show by the same numercial method that the rapidity of the pulse was inversely as the height of the person; or, to give an example, let A be 5 feet, and let B be 6 feet, then the pulse of A is to that of B. as 72 to 65. But this table is not carefully drawn up, and the conclusions are not legitimate.

5*thly*, He suspected a diurnal movement in the rapidity of the pulse; viz. that it decreased during sleep, and increased from morning until night. With these and several other of his conclusions, I do not agree. We do not here discuss the accuracy or legitimacy of Dr Robinson's conclusions generally, but simply whether or not he was aware of the existence of certain laws respecting the physiology of the pulse, and of the influence of certain disturbing causes. Now nothing is clearer than that he was quite aware of these circumstances.

Lastly, He attempted to ascertain statistically the effects of muscular motion on the pulse *in health*; the ratio of the pulsations to the inspirations and the immediate result on the heart's action, of a temporary deprivation of air.*

With reference to any progress made in this inquiry from Robinson's time to my own I feel a delicacy in making any critical observations. When I published my observations in the

* Some observations were made on the pulse subsequent to those of Robinson, by Falconer and Hewson, but I have failed in procuring the works.

Edinburgh Medical and Surgical Journal, I was quite aware that Dr Sanders had published a work on Consumption of the Lungs, in which the fact of the differential pulse was stated, and the action of various drugs experimented on with a view to the confirmation of certain theoretical views held by the author of that work, with a reference more especially to the therapeutic effects of foxglove: nor was I aware until reading the proceedings of the British Association held in Dublin, that Dr Macdonell claimed, * in opposition to the counter claims of Dr Sanders, a discovery, which in no shape belonged to either, viz. the discovery of the differential pulse, belonging exclusively to Dr Bryan Robinson.

Of any other facts or discoveries published by either of these gentlemen, I am not aware, but shall be most happy to give them a full acknowledgment on their being pointed out to me.

The physiological history of the human pulse presents a number of questions well meriting a solution. In this section it is proposed to analyze the facts accumulated by various observers.

Part II.

The question of an average pulse for any particular age can only be put, at least in this form, by those ignorant to a great extent of the physiology of the pulse. Systematic writers on physiology, by stating such questions and replying to them, display a desire to satisfy the general reader at the expence of truth. The pulse varies every hour of the day and night, and after every meal; it is extensively influenced by merely rising from the sitting to the erect posture; and how, under these circumstances, any one can arrive at an average pulse, it is somewhat difficult to imagine. What can be more vague and more unsatisfactory than the following table; what so unlike correct physiology!

Table I.

Average of the Human Pulse at different ages according to Bryan Robinson.

Age.	*Length in inches.*	*Pulse.*
At birth,	18	150
½ year,	25	137
1 -	28 -	126
2 years,	32 -	120
3 -	35 -	113
6 -	42 -	97
9 -	46 -	90
12 -	51 -	82
14 -	55 -	77
	60 -	72
	68 -	67
	72 -	65

* Dublin Medical Journal, No. 22.

TABLE II.

MAGENDIE.	ELLIOTSON, last edition.	MAYO.
	Before birth, 128	
At birth, 130 to 140		At birth, 140
1 year, 120 to 130	At 1 year, 124	Of 1 year, 120
2 years, 100 to 110	2 years, - 110	From 100 to 110
3 90 to 100	When the first teeth	
7 85 to 90	drop out, - 86	
14 80 to 85	At puberty, - 80	- - 80
Adult age, 75 to 80	At manhood, - 75	Adult from 70 to 75
First old age, 65 to 75	Old age, about 60	- - 60
Confirmed do. 60 to 65	Scarcely found it twice alike.	

It is curious to observe that the oldest writer is not only more minute, but approaches perhaps nearest to the truth.

Such tables as the above are mere copies of each other, and in respect to them I would make the following remarks.

No mention is made how these averages were struck, or if the numbers were drawn from averages at all. I do not believe that they were. We are left to guess, 1*st*, at what time of the day the pulse was noted, and if in all the individuals at the same time of day; 2*dly*, in male or female; 3*dly*, sitting, lying, or standing; 4*thly*, before or after meals; 5*thly*, morning, noon, or night; 6*thly*, whether sleeping or waking.

I hope there is no person who, on considering these remarks carefully, will venture to say that such tables are of any use. It were easy to add to these tables others precisely similar of other compilers, such as Rochoux, Adelon, &c., tending, however, to no other result than that of proving the fact of their having rigorously copied each other.

A little reflection clearly shows that there can be no such thing as an average pulse, unless counted under circumstances precisely similar in all the individuals experimented on; and even then we should only obtain the average for that particular hour and time of day. This would be an average pulse in a certain sense. In the absence, however, of such data, the practical utility of which I question, there still are some, imperfect as they are, which merit attention.

First, M. Paul Dubois makes the pulsations of the fœtal heart to be from 140 to 150, and very often 144.

But it is a remarkable fact, that, in order to arrive at even an attempt at a fair average, we are forced to go back to Dr Robinson's Treatise, written nearly a hundred years ago, and find it to contain the only approach at an analysis of this subject. He gives in table second the average pulse of two men at every hour of the day, (whilst sitting) from 8 A. M. until 11 P. M. taken for several weeks; the mean of these waking hours was, for A. 76; for B. 78. But still there is a meagerness of

detail and a narrowness of observation, rendering it impossible to base on such observaons any important conclusion.

The mid-day pulse of 25 young gentlemen, taken between the hours of 12 and 2, in July 1836, was as follows:—

TABLE III.

No.		*Age.*	*Height.*	*Pulse sitting.*	*Pulse standing.*
1	H.	21	5 feet 5¾ inch.	66	64
2	H.	22	5 7	74	82
3	R.	27	6 1¼	70	76
4	H.	18	5 6	68	72
5	G.	19	6 0	56	56
6	M'G.	18	5 5	74	76
7	S.	20	5 7½	68	74
8	W.	20	5 10	82	82
9	T.	17	6 0	96	96
10	E.	17	5 5½	61	70
11	H.	20	5 0	68	68
12	W.	20	5 5	60	72
13	W.	20	5 8	86	84
14	S.	22	5 6	68	76
15	D.	18	5 8	76	82
16	F.	22	5 3½	66	68
17	W.	19	5 6	64	64
18	C.	18	5 9	84	92
19	K.	39	5 11	66	74
20	B.	24	5 11	52	56
21	T.	20	5 11½	69	81
22	D.	17	5 7	84	86
23	S.	22	5 10	82	82
24	M'D.	16	5 8	80	80
25	O.	29	5 10¼	70	72

Mean of ages, 25 Mean Pulse Sitting, 72.4 Standing, 75.4

This table discloses some curious facts in the history of the pulse. So far as could be determined, all these young gentlemen were in good health, with one exception, and yet we find two, in whom the pulse constantly decreased on rising from their seat, and became accelerated on sitting down; being the very reverse of a law, which all physiologists had thought to be universal.

Besides these two in whom the pulse showed so singular a character, there were six others who had no differential pulse, that is, in whom the muscular action required to maintain the body erect did not accelerate the pulse a single beat. It is needless, I hope, to tell the Society that these observations were made with the greatest attention to accuracy.

M. Billard's observations on the pulse of infants were, without doubt, carefully performed, and as infants are less likely to be affected than adults by position, food, &c. they furnish, I think, data to determine the usual rate of the infantile pulse.

In 41 infants from 1 to 10 days old, and all in good health, the pulse was

In 18 less than		80	In 1 less than		130
2	-	80	2	-	145
1	-	89	2	-	150
4	-	100	1	-	180
10	-	110 to 129			

In 36 children from 1 to 2 months.

14 from	80 to	85	5 from	110 to 112	
1	60 to	62	2	114	
2	90		7	125 to 130	
2	94 to	95	3	140–147 to 150	

In 20 children from 2 to 3 months.

14 more than		90	2 more than		70
2	-	100	2	-	70 to 80

M. Quetelet gives the average pulse of eighteen boys, and the same number of girls at birth, as follows:—

	Max.	*Min.*	*Med.*
Boys,	165	104	136
Girls,	165	108	135

I have endeavoured to determine the rate of pulsations of the heart in children of different ages, and under different circumstances, as to food, sleep, &c., not so much with a view to any general average of their pulse, as to ascertain if they obeyed the same laws as the adult pulse, but found them too variable to lead to any desided result. I give the following tables, however, as they may be useful to future observers.

TABLE IV.

	1st October 1835.	
Age 7	116	9 A. M. immediately after breakfast.
9	100	
5	124	
43	75	
9	88	12 Noon.
7	92	
5	110	
43 R.K.	67	
	2d October 1835.	
7	112	10 A. M. after breakfast.
8	112	
9	116	
43	74	
	28th September.	
9	100	1 P. M.
7	98	
43	64	
After exercise for two hours.		
9	100	3 P. M. before dinner.
7	100	
43	64	
9	101	5 P. M. immediately after dinner, common fare, a little porter and kipperd salmon, meat and broth.
Age 7	92	
43 R.K.	78	
9	90	8 P. M. after very moderate exercise.
5	96	
7	96	
43	70	
9	92	9 P. M. no exercise.
7	93	
43	63	
8 P. M. 13th September.		
7	94	
9	98	
42	64	
½ past 4 after dinner.		
9	103	
7	97	
43	67	
5	98	
9	82	8 P. M.
7	90	
43	58	

Messrs Leuret and Matinie, in their inquiries to determine the

average rate of pulsation in the insane, of both sexes, furnish us with some data for the determination of an average pulse at a certain hour of the day. I shall say nothing at present of the result they arrived at respecting the supposed greater quickness of the pulse in the aged than in those of middle age, reserving this topic for consideration in an after part of this memoir.

TABLE V.*

Alienes,	10 Men	Morning 75	Evening 75
Non alien,	12 do.	do. 68	do. 66
Alienes,	7 Women	Morning 75	Evening 79
Non alien,	6 do.	do. 81	do. 75

These are the data that I am acquainted with in respect to the question of an average pulse.

Part III.

But there are numerous circumstances in the physiological history of the pulse which better merit consideration. These I shall consider in the following order.

1. Is there, or is there not, a "diurnal revolution" of the pulse in respect merely to numbers, independent of stimulation by food or exercise? Now I fancy that this has been completely proved in my first memoir, published more than twenty years ago. But some have asserted that this morning acceleration and evening retardation depends altogether on the use of food and other stimulants, and that, were it not for these, the pulse would not rise early in the morning, and fall towards evening, but would sink constantly. This opinion is altogether incorrect, so that no more need be said about it.

Table showing the differential pulse; observed in Mr S. aged 20, morning and evening, proving a diurnal revolution, both as to numbers, and as to excitability, altogether independent of food or exercise, and proving the morning pulse to be quicker than the evening one.

TABLE VI.

Date. April.	*Hour.*	*Horizontal.*	*Sitting.*	*Standing.*	*Differential.*
5	10 P. M.	53	64	78	25
6	7 A. M.	60	75	90	30
7	7 A. M.	65	80	90	25
8	10 P. M.	57	66	78	21
9	7 A. M.	65	80	90	25
10	10 A. M.	60	82	95	35
	10 P. M.	58	70	76	18

Average differental Pulse.
Morning, 28.7 Evening, 21.3

	Horizontal.	*Sitting.*	*Standing.*
Average morning pulse,	62	78.3	90
Average evening pulse,	56	67	77

The apartments occupied by Mr S. (a gentleman of the

* See Leuret et Mativie.

most regular habits and in excellent health,) seemed to me cold, and exposed to the boisterous westerly winds of this climate. I have no doubt that the temperature of the room had fallen greatly during the night, otherwise the difference between the morning and evening pulse would have been still more marked.

The morning pulse was of course noted before breakfast.

Without doubt, were we to continue long without food, the pulse would first sink, and then become exceedingly quick on the slightest excitement. No one doubts this; but that the morning pulse is quicker than the evening one, altogether independent of any stimulants, is proved I think beyond a doubt, by these and other tables.

The next question, which is a more important one in many respects, is as to the existence of a diurnal revolution in the excitability of the heart; by this I mean a varying susceptibility according to the time of day for a healthy powerful action of the heart, when influenced by food, exercise, &c.

The numerous observations detailed throughout this paper, and in my former memoir, published in 1814–15, may, it is hoped, settle this question with unprejudiced persons. The excitability of the heart diminishes regularly from an early hour until late in the evening. Indeed, I have reason to think that, since the publication of my first memoir in 1815, few have doubted this fact, and I beg leave therefore to refer at once to that memoir.

It is extremely difficult to reckon accurately the usual number of inspirations and expirations of any individual, in as much as whenever the mind becomes directed to the respiratory act, it never fails to alter it and render it measured, as if almost voluntary; nevertheless, the researches of that most accurate and ingenious philosopher, M. Quetelet, merit attention.

From observations made on women he constructed the following:

TABLE VII.

Ages.	*Pulsations.*	*Inspirations.*
0	135	44
15 to 20	78	19
20 to 25	77	17
25 to 30	72	
30 to 50	71.45*	19

TABLE VIII.

	Pulsations.			*Inspirations.*		
	Max.	*Min.*	*Med.*			
In 18 boys at birth,	165	104	136	70	23	44
18 girls at birth,	165	108	135	68	27	44

* An error of the press, I imagine, for 71.45.

In 300 males of different ages.

	Pulsations.			*Inspirations.*		
Ages.	*Max.*	*Min.*	*Med.*	*Max.*	*Min.*	*Med.*
0	165	104	136	70	23	44
5	100	73	88	32		26
10 to 15	98	60	78			
15 to 20	90	57	69.5	24	16	20
20 to 25	98	61	69.7	24	14	18.7
25 to 30	90	59	71	21	15	16
30 to 50	112	56	70	23	11	18.1

M. Quetelet thinks that sleep affects both the pulsations of the heart, and respiration, in corroboration of which he gives the following

TABLE X.

		Pulsations.			*Inspirations.*		
Ages.		*Awake*	*Asleep*	*Rel.*	*Awake*	*Asleep*	*Rel.*
Girl from	3 to 4	102.3	92	1.11	30.2	24.8	1.22
Boy,	4 to 5	93.4	77.3	1.21	29.3	21.5	1.36
Woman,	26 to 27	77.5	67	1.16	27 0	20.8	1.30

But I can nowhere find in the valuable works of M. Quetelet, that he was aware of the effects of position on the pulse; or of its diurnal revolution, or of the diurnal change in its excitablity, and this lessens, I regret to say, the otherwise entire confidence I and all others would be disposed to place in the results arrived at by this profound and ingenious philosopher. In the tables, for example, constructed to determine the influence of sleep on the pulse and respiration, compared with the waking state, no mention is made of the time of day or night, nor of the position of the person whilst awake, whether horizontal, sitting, or standing upright. The pulsation of the person sleeping would, in all probability, be reckoned in the evening at a time when the pulse sinks naturally altogether independent of sleep.

Again he found, that in a male child from 4 to 5 years old. the pulsations whilst asleep were 77.3

Inspirations, 24.5

Whilst awake,

Pulsations, 93.4

Inspirations, 29.3

In the construction of these tables, two great data have been neglected, viz. the position of the person, and the time of the day.

If the pulsations and inspirations were reckoned during the night as an index of the effects of sleep, then the effects of the time of day are mistaken for the effects of sleep; for at midnight the pulse numerically is low in a healthy and stout person, whether asleep or not, and the excitability of the heart is nearly at its zero. Again, the pulse would be counted at one time whilst the person was in a horizontal position, and at another time whilst sitting or even standing. This would al-

so make a difference of 10 or 12 beats, which M. Quetelet has not taken into account. I question much if any effects arise from sleep, excepting of a very trivial nature; but restlessness and watchfulness, arising from any cause when the body ought to sleep and requires it, would produce a highly excited pulse, the result of weakness and temporary ailment.

In this climate the temperature of our rooms often sinks very much during winter, and especially towards the morning;* with the temperature the pulse sinks, and this may be one cause why, as I have just remarked, some have doubted the fact of the pulse being quicker in the morning than towards evening. Haller, it is said, doubted this, but, beyond all question, he was wrong. The greater excitability of the morning and forenoon pulse, over that of the afternoon and evening one, has never been questioned, since first proved by me, so far as I know.

The effects of a cold room in depressing the pulse is such that even the active exercise of writing fails to counteract it.

The following table shews that the pulse remained much depressed under circumstances in which it ought to have risen very much.

TABLE XI.

1st December.	2 A. M. in bed, - - -	60
	5 A. M. sitting and writing for some hours. There was no fire in the room.	60
	6 A. M. still writing, - - -	62
	7 A. M. ditto, - - -	60

Here the pulse ought, but for the cold room, to have risen very much, for the action of writing raises the pulse considerably; that of composition still more. Those whose minds are much occupied with business are not *fair* subjects for experiments on the pulse.

The use or abuse of wine and spirituous liquors renders all observations on the pulse inaccurate. These liquors in my opinion, are purely medicinal. Their daily or even frequent use in any climate, or in any quantity, I apprehend to be a great error in regimen, and can never be required. I think them directly opposed to the enjoyment of perfect health and strength.

The restlessness of children, the powerful influence of their

* The thermometer being seldom above 61 or 62 of Fahr. even with a strong fire in the room. I hope it is unnecessary to remark to any medical person that, if he sits before a strong fire, his pulse will rise almost at any time, and that if he sits still in a cold room until his feet feel as if frozen, his pulse will sink proportionally; hence if possible all observations on the pulse ought to be made in summer. I attribute to an inattention to the fact of the coldness of apartments in this country generally during the night and towards morning, why some have thought that there is no diurnal revolution of the pulse as to its numbers, independent of stimulation by food and otherwise; or, in other words, that the pulse will not accelerate towards morning spontaneously.

mind over the heart's action, and their liability to slight ailments, render observations, in respect to their pulse, of little moment. I made at least one hundred carefully noted observations on the pulses of four young persons of different ages, varying from four to ten, and this was the conclusion I drew; that in children of these ages the irregularities of the pulse, proceeding from numerous causes, renders all observations in respect to them of little or no value. I reserve the tables in case they should be afterwards required to prove these conclusions, but their publication at the present moment I consider of no importance. They gave me more trouble than all the rest of the inquiry. One fact was evident, viz. the younger the person the quicker the pulse.

The following is an average table showing the rate of pulsation in four young persons at 4 P. M. and before dinner.

Ages.	*Position.*	*Pulse.*	
9	Sitting	94	27th December, day mild and raining.
7		102	
5		106	
3		108	

Table showing the pulsations of the same young persons (after dinner) at 6 P. M.

Ages.	*Position.*	*Pulse.*
9	Sitting	96
7		106
5		116
3		120

Table XII.

Observations made by Mr S., aged 20; height, 6 feet; quite healthy, and of most regular habits.

Date. 1836. *Mar.*	7 *In bed.* A. M.	9 *Sitting and writing* A. M.	11 *Sitting at lecture.* A. M.	1 *Standing.* P. M.	3 *Sitting at lecture.* P. M.	*Sitting at home.* 5 P. M.	7 P. M.	9 P. M.	11 P. M.
14,	63	110	86	90	78	86	85	63	62
15,	57	111	80	86	75	70	85	75	77
16,	63	108	90	82	76	66	80	74	60
17,	60	104	74	80	76	72	90	76	64
18,	60	100	72	85	74	68	74	72	60
19,	58	72	100	100	78	68	83	72	60
20,	58	76	85	78	80	96	88	68	72
21,	60	92	84	72	68	75	90	75	88
22,	54	100	78	80	72	68	84	68	58
23,	56	100	85	84	72	64	72	66	62
24,	54	96	66	70	69	76	80	71	66
25,	58	106	75	82	70	78	78	68	58
26,	60	80	100	95	85	80	86	78	66
27,	58	70	72	88	75	68	75	74	68
Average,	58.5*	94.6	82.6	83	74.9	72.9	73.6	71.6	65.78

* The average morning pulse sitting was 78.3. This was deduced from other observations.

REMARKS.—During these observations the meals were,
Breakfast, (coffee) 7½ A. M.
Dinner, . 5½ P. M.
Coffee, . . 8½ P. M.
Neither wine, spirits, nor malt liquors were used.

To determine the effects of exercise on the pulse I made the following observations.

TABLE XIII.

Showing the rate of sinking of the pulse after walking a mile in a quarter of an hour, counted after invervals of five minutes.

After 1st 5 minutes,	2d do.	3d do.	4th do.	5th do.	6th do.	7th do.
105	93	90	88	88	88	88

Table.—Rate of sinking of the pulse, counted at intervals of five minutes, after walking four miles in one hour.

90	85	70	80	75	77	75

TABLE XIV.

Shewing the rate of sinking of the pulse at intervals of five minutes, after walking one mile in ten minutes.

After 1st 5 minutes.	2d do.	3d do.	4th do.	5th do.	6th do.	7th do.	8th do.
124	110	100	100	98	97	90	90

These observations were made for me by a young gentleman, (Mr S.) muscular, and seemingly quite healthy.

Exercise quickens the pulse more in the young than in the aged. Walking at the same rate with a young friend of half my age, I found our pulses to be in the following ratio:

TABLE XV.

	Age.	*Pulse.*	*Pulse.*	*Pulse.*	*Pulse.*
R. K.	42	92	94	104	77
H. R.	19	113	130	130	94

The pulsations were counted at intervals, during a walk of twenty miles, at four miles an hour. Both stood whilst the pulse was reckoned. Towards 5 P. M. I felt more fatigued than he did, and my pulse shewed, by an increased elevation, the effects of debility: R. K. 110; H. R. 117. When the pulse quickens unnaturally on exercise it is a sign of debility.

The following table contains the result of a series of observations made during the course of a day, in which, though only twenty-two miles were walked, the fatigue felt towards the close of the day was very considerable.

The table shows,

1*st*, The effects of exercise when well, and when debilitated by over fatigue.

2*d*, The rate of sinking of the pulse during the day.

3*d*, The great rapidity of the pulse occasioned by debility. It proves that exercise should constantly stop on this side fa-

tigue; when pushed too far, the heart's action changes, and fever to a certain extent is kindled up. Debility, therefore, induced by great fatigue quickens the pulse. Thus, whenever walking is pushed beyond the strength of the individual, the rapid increase in the number of the pulse becomes a measure of the increasing exhaustion: it, in fact, more resembles febrile than healthy excitement.

Table XVI.

	Standing.	Sitting.
9 A. M. before breakfast, - - -	72	64
10 A. M. after ditto, - - -	76	70
11 A. M. having walked two miles at the rate of four per hour, the pulse being counted immediately on sitting, first half minute 53 } 99 second do. 60 }		
From the 4th to the 5th minute		91
Noon.—After four miles more at the same rate, counted by half minutes;		
Sitting 1st minute, - - -		45 41—86
do. 3d do. - - -		82
do. 7th do. - - -		81
do. 11th do. - - - -		76
do. 15th do. - - - -		76
Half-past one.—After other four miles at the same rate.		
Standing. first half minute 52 } 98 second minute, 46 }		
sixth do. 90		
eleventh do. 88		
fifteenth do. 86		
Half-past two, after other three miles at the same rate.		
First half-minute 58 } 111 Second do. 53 }		
20 minutes past 3, after other four miles at the same rate.		
First half minute 64 } 120 Second do. 56 }		
6 P. M. After four miles, making in all twenty-two; the latter were performed slowly, the fatigue felt being very great, -	Standing.	119
In twenty minutes lying on a sofa, it fell to		72
But at half-past nine P. M. sitting, it was still		76

General conclusions.—It is certainly much safer for the reader to draw from the foregoing tables and observations whatever conclusions he may think fit, or that he thinks the data will bear out; but least it be said that I have come to no conclusion, (which those are apt to say who have not patience to think for themselves,) I shall venture a few, begging it, however, to be distinctly understood that the observations may themselves warrant quite different ones.

1. The velocity of the heart's action is in the direct ratio of the age of the individual, being quickest in young persons, slowest in the aged. There may be exceptions to this, but they do not affect the general law.

2. There are no data to determine the question of an average pulse for all ages.

3. There is a morning acceleration and an evening retarda-

tion in the number of the pulsation of the heart, independent of any stimulation by food, &c.

4. The excitability of the heart undergoes a daily revolution; that is, food and exercise most affect the heart's action in the morning and during the forenoon, least in the afternoon, and least of all in the evening. Hence we should infer that the pernicious use of spirituous liquors must be greatly aggravated in those who drink before dinner.

5. Sleep does not farther affect the heart's action than by a cessation of all voluntary motion, and by a recumbent position.

6. In weak persons, muscular action excites the action of the heart more powerfully than in strong and healthy individuals; but this does not apply to other stimulants, to wine, for example, or to spirituous liquors.

7. The effects of the position of the body in increasing or diminishing the number of pulsations is solely attributable to the muscular exertion required to maintain the body in the sitting or erect position; the debility may be measured by altering the position of the person from a recumbent to the sitting or to the erect position.

9. The law of the differential pulse is not universal. There are exceptions to be found even in those in perfect health. It is also possible that there may be some in whom the diurnal revolutions of the pulse takes place only in consequence of the use of stimulants. But this has not been proved satisfactorily.

10. The most powerful stimulant to the heart's action is muscular exertion. The febrile pulse never equals this.

11. The law of relation between the inspiration and pulsation of the heart has been stated by M. Quetelet.

Note on the foregoing Memoir by the Editors.

Though the Editors of the Edinburgh Medical and Surgical Journal cannot answer for the accuracy of the facts and statements made, or the correctness of the conclusions deduced, in the papers inserted, and must allow them to rest on the character of the authors, yet, in circumstances in which statements made are liable to lead to mistake, they always conceive it to be their duty to rectify the error.

In page 364, in the foregoing paper on the pulse by Dr Knox, it is stated that "some observations were made on the pulse subsequent to those of Robinson by Falconer and Hewson." This statement, it is requisite to say, is erroneous. In no part of the writings of Mr Hewson are there any observations on the pulse, or on its changes; and the readers of this Journal will search there in vain for any information on this subject. The first and second part of the Inquiries on the Blood, and on

the Anatomy and Physiology of the Lymphatic System, were published by the author himself,—the former in 1771, and again in 1772 and 1780, and the latter in 1774. Mr Hewson died on the 1st of May 1774, before he had published the third part of the Inquiries, containing observations on the Red Particles of the Blood, the Structure and Uses of the Lymphatic Glands, the Structure and Uses of the Thymus Gland, and the Structure and Uses of the Spleen. The publication of this third part was accordingly undertaken and completed in 1777, by the friend of Mr Hewson, Mr Magnus Falconar, a teacher of Anatomy in London, who for some time succeeded Mr Hewson in that occupation. In no part of this volume will the reader find any information on the pulse or its variations.

It is proper, however, to mention, that nearly twenty years after the publication of the third part of Mr Hewson's Inquiries by Mr Magnus Falconar, viz. in 1796, Dr William Falconer, of Bath, a gentleman quite different, and who had already distinguished himself by his writings on the Bath Waters, the Influence of Climate on Mankind, and the Influence of the Passions on Diseases, published a series of very excellent and instructive observations on the pulse, "intended," he informs us, "to point out with greater certainty the indications which it signifies, especially on feverish complaints." In this treatise, besides a short view of what had been accomplished on this subject by previous inquirers, as Sir John Floyer, Senac, Dr Bryan Robinson, Haller, and Heberden, Dr Falconer takes a view of the influence exerted on the pulse by the circumstances of sex, temperament, stature, time of life, and period of the day; rest or activity; external temperature, and food or abstinence; endeavours to fix the standard or natural pulse in the adult, which he is disposed, from various circumstances, to place at 75; and concludes with several important considerations on the changes which the pulse undergoes in various states of disease.

To the volume is appended a series of tables, the use of which is to determine, in any given case of natural or standard pulse during health, the increase in the number of beats within a given time, which it is likely to undergo during the presence of disease, especially of febrile characters.

Of this work, which is not rare, there are two copies in the College Library, two in the Library of the Royal Medical Society, and one in that of the Royal College of Physicians.*

* Observations respecting the Pulse; intended to point out with greater certainty the indications which it signifies; especially in feverish complaints. By W. Falconer, M. D., F. R. S., Physician to the General Hospital, Bath. London, 1796.

ART. VI.—*Observations on Extraction and Displacement of the Cataract, with Tables showing the relative success resulting from the performance of these operations.* By J. ARGYLL ROBERTSON, M. D. F. R. S. E., Surgeon to the Eye Dispensary of Edinburgh, Lecturer on Surgery, &c. (Read before the Medico-Chirurgical Society of Edinburgh, 6th January 1836.)

THERE are three distinct modes of operation by which cataract may be cured.

1*st*, By *Division*, or the breaking down of the opaque lens, so that it may be acted upon by the aqueous humour, dissolved, and by absorption removed from the eye.

2*d*, By *Extraction*, or the complete removal of the opaque lens from the eye, through an incision made in the cornea.

3*d*, By *Displacement*, or the removal of the opaque lens from the axis of vision, but still leaving it within the eye.

It is almost universally admitted, that when the cataract is of soft consistence, so that it may be broken with facility into fragments, or so fluid that it may be diffused through the aqueous humour, the operation of *Division* should be resorted to, as inflicting comparatively little injury on the organ, and effecting a perfect and permanent cure, the lens being just as completely removed as it could be by the operation of *Extraction*, and at infinitely less risk.

It is also generally admitted that, in numerous cases of hard cataract, the operation of *extraction* cannot be resorted to, and other operations must be adopted for its removal from the axis of vision, as in the following circumstances, viz.

1. When the section of the cornea could not be completed without wounding the iris, in consequence of the cornea being unnaturally flat, the iris unusually convex, or when adhesions exist between the iris and cornea.

2. When there exists a diseased condition of the cornea, that would be likely to interfere with the speedy closure of the incision, or would render that part peculiarly liable to inflammation if wounded.

3. When adhesions exist between the margin of iris and capsule of the lens, preventing the free dilatation of the pupil, or when the pupil is small and not dilatable to such an extent as would admit freely of the passage of the lens, whether this condition of the iris arise from natural conformation, or from its component fibres having been agglutinated and rendered immoveable by the interstitial deposition of lymph.

4. When there is what is commonly termed "a fluid or disorganized condition of the vitreous humour;" that is, when the cells of the hyaloid membrane no longer exist. In such a case, were an incision made in the cornea of sufficient size to admit of the passage of the lens, through the same incision the whole of the vitreous humour would escape, and the eye sink in the socket. Such an accident I have witnessed in the hands of a skilful operator conversant with diseases of the eye.* It is also evident, that when the vitreous humour is in a fluid state, and an incision made in the cornea, that the slightest contraction of the muscles of the eye or eyelids would cause its escape.

5. When there is eversion or inversion of the ciliæ or palpebræ, either of which conditions would interfere with the closures of the wound in the cornea.

6. When the patient is extremely nervous, irritable, or timid, and deficient in self-command. In these circumstances, not only are the different steps of the operation rendered extremely difficult and embarrassing to the operator, and hazardous to the patient, but an involuntary contraction of the muscles of the eyeball, after the section of the cornea has been completed, has in many instances emptied the eyeball of its contents. To show the difficulties that may arise from this cause, I may mention the case in which I extracted a cystocercus from the eye of a girl 8 years of age. The section of the cornea was made without difficulty, and in a perfect manner, but no inducement could make the girl again open the eyelids. To use force was out of the question. Indeed, the mere involuntary contraction of the muscles of the eyeball, forced out the animalcule, and along with it the lens, without my having even attempted to open the eyelids. Had any such attempt been made I have not the least doubt that the vitreous humour also would have been discharged, and all hope of vision irrecoverably lost; as it was, the iris partially protruded, and adhered to the cornea, diminishing the size and altering the form of the pupil. The sight is rendered still further imperfect from subsequent opacity of the capsule of the lens. This may, however, be in a great measure remediable by operation, should it at any future period be rendered expedient.

* Dr Mackenzie, in his excellent Treatise on Diseases of the Eye, says, "The slightest touch, when the vitreous humour is dissolved, is in general sufficient to make the cataract sink to the bottom of the eye." But still Dr Mackenzie says, that, in such a case, he would extract through a small section of the cornea, as the "only mode which is safe and proper under such circumstances." I cannot well conceive how such an incision as would admit the lens to escape could be made without allowing the whole of the fluid vitreous humour to flow out,—an accident always followed by total loss of sight; and were the lens "by a slight touch" to be separated from its connections, and "sink to the bottom of the eye," it would not be an easy matter to lay hold of and extract it.

In all cases, therefore, of soft or fluid cataract, or when any of the above-mentioned objections to the operation of *Extraction* are present, the needle must be employed.

But a most important question remains to be solved, viz. whether a hard cataract, when none of the obstacles alluded to are present, ought to be *Extracted* or *Displaced*. On each side of the question, we find ranged the names of the most distinguished in our profession, so that we cannot settle the point by referring to authorities. It may be expedient, therefore, to compare the advantages and disadvantages attendant upon each mode of operating, and the relative success which has resulted in so far as that can be ascertained.

The operation of *Extraction* has almost invariably been performed nearly in the same manner, viz. by making a semicircular incision through the cornea, by which the opaque lens is removed from the eye.

On the other hand, the operation by displacement is performed either by entering the needle through the cornea, or through the sclerotic, also by *Depression*, that is, pushing the lens perpendicularly downwards, or by *Reclination* as it is termed, by which the lens is imbedded in the vitreous humour, with its anterior surface turned upwards, and its upper edge backwards.

It is evident, that before we can compare the operations of *extraction* and *displacement*, it is necessary that we should determine in what mode the latter ought to be performed.

In the first place, it appears to me that the needle should be invariably entered through the sclerotic.

The following objections may be stated to the passing the needle through the cornea, or the operation of *Keratonyxis*, as it is termed.

1*st*, If inflammation follow, it is most apt to occur in the wounded part, and may destroy the transparency of the cornea, which is essential to vision.

2*d*, From the edges of the wound in the cornea forming the fulcrum on which the needle is moved in its different motions, and from its not being a simple incised wound, it is apt not to close immediately, consequently the aqueous humour drains out, the Iris is thereby brought in contact with the wound, to which it may adhere, and render the pupil permanently distorted.

3*d*, The margin of the Iris impedes the motions of the needle; besides, from the pressure made upon this membrane, in the act of displacing the cataract, it has become paralysed, in every instance in which I have seen this operation performed.

4*th*, The needle being entered through the cornea, it is almost impossible to displace the lens, except in the direction of

the iris, and ciliary processes, by which disorganizing inflammation of the eye is almost certain of being excited. The point of the needle is also apt to come in contact with and lacerate the retina.

5th, The needle can scarcely be made to avoid transfixing or spitting the lens, being entered almost at a right angle to that body, so that if the lens be of a firm or glutinous consistence, it will adhere tenaciously to the needle, and in the attempts to disengage it, either the vitreous humour will be broken up and poached, or the iris will be pressed between the lens and cornea in withdrawing the needle from the eye, and the operation be left not only unfinished, but the eye in a most dangerous condition.

6th, The hand of the operator intervenes between his eye and that of the patient; he cannot therefore distinctly follow the movements of the needle, or of the cataract, and particularly at the moment when, to *Displace* the latter, it is necessary to raise the hand.

These objections appear to me sufficiently strong to forbid the introduction of the needle through the cornea in *displacement*, more especially as I am not aware of any advantage that can result of any importance.

The operation is not so objectionable for the purpose of breaking down a soft cataract, although by no means so advantageous as that through the sclerotic.

Depression.—In the operation of *depression*, the opaque lens is supposed to be pushed perpendicularly downwards, till its upper edge has passed below the margin of the pupil, so that it may no longer interrupt the admission of light into the interior of the eye.

On examining the relative diameter of this part of the eye into which the lens is supposed to be *depressed*, and that of the lens, it will at once be apparent that such an operation is impracticable. In fact, before the upper edge of the lens can be made to descend below the margin of the pupil, its lower edge must have come in contact with the coats of the eye, and if it be attempted still farther to depress the lens, its lower edge will glide towards the back part of the eye, and the upper be directed against the posterior part of the iris, the retina and choroid being at the same time ruffled and injured, or perhaps the lens may even be forced through the substance of these membranes. Indeed Daviel says, that he has found, on dissection, the lens placed between the retina and choroid, and these two membranes torn in several places.

It is evident, therefore, that by *Depression*, the lens will be imperfectly imbedded in the vitreous humour; part of it being

situated in the posterior chamber of the aqueous humour, it will consequently be apt to reascend. It is also evident that injurious pressure will be made on the iris, retina, and choroid, and inflammation, or total destruction of the functions of the organ may be the consequence.

For these reasons, the operation of displacement by *Depression* ought not to be attempted, and is always, and in all circumstances, unwarrantable.

We have now to decide whether, in a case of hard cataract, the operation of *Reclination* or that of *Extraction* is to be chosen.

To determine this point it will be necessary to consider the advantages and disadvantages attendant upon each mode of operating.

Extraction.—In *Extraction*, the wound in the cornea must be sufficiently large to admit of the easy removal of the lens. In making this incision the iris is apt to bulge under the edge of the knife, from which position in many cases it cannot be extricated, so that we must either relinquish the operation for the time, cut through the iris, or enlarge the incision by scissors, after withdrawing the cataract knife. By any of these proceedings much injury is done to the organ, and violent inflammation is liable to follow.

If the cataract knife be not well tempered, and its point very sharp, or if the cornea be unusually hard, the point of the knife, instead of transfixing the cornea, bends towards the iris, so that the operation cannot be completed without a change of instruments, by which, also, the organ is apt to be injured, and the danger of subsequent inflammation increased.

The incision in the cornea being completed, if pressure be made on the eye, or if the muscles of the eyeball contract powerfully, the whole, or part of the vitreous humour, may be discharged. If the whole, the sight is irrecoverably lost,—if a part, the hyaloid membrane, in the cells of which the vitreous humour is contained, necessarily intervenes between the lips of the incision in the cornea, preventing or retarding their union. Attempts to replace the hyaloid membrane by the probe commonly call into action the muscles of the eyeball, by which a still greater portion is protruded.

I have seen the whole vitreous humour escape on the completion of the incision through the cornea, in consequence of undue pressure on the eyeball,—of spasmodic contraction of its muscles, also from a disorganized state of the cells containing this humour. In each case, it was followed by total loss of the eyeball from the inflammation which followed. Such are the accidents which are apt to occur during the performance of *Ex-*

traction even by the best operators, some of which cannot be avoided by any degree of care or skill on the part of the surgeon.

Even when none of the above accidents occur during the performance of the operation, still, so severe an injury as the eye necessarily sustains, is usually followed by violent inflammation, which is indeed the most frequent cause of the failures in *Extraction.* When the inflammation is severe, the incision in the cornea does not heal, the lips gape, and the iris protrudes. If it be subdued at this period, a large and unseemly cicatrix, and irregular or obliterated pupil is the result, with a greater or less injury to the sight. If the inflammation proceed, suppuration and destruction of the organ is the consequence. In some instances, inflammation of the sclerotic and iris takes place, followed by effusion of lymph, and obliteration of the pupil. *Amaurosis* may also occur, either as the immediate effect of the injury inflicted during the operation, or of the subsequent inflammation. " It very rarely happens," says Dr Mackenzie, " that this operation is not followed by such a degree of inflammation in one or other of the textures of the eye, as to require the abstraction of blood from the system. So well established is this observation, that some make it a general rule to bleed the patient at the arm in the course of the first twenty-four hours after the operation, whether pain is complained of or not."

In so hazardous a state is the eye placed by this operation, independent of the risks I have already mentioned, that " the patient must be put to bed with as little movement of the head and body as possible. A careful assistant or experienced nurse sitting constantly by the bed side for forty-eight hours, or even for several succeeding nights, ought attentively to watch the patient when he wakes, taking care especially that he does not turn suddenly round upon the eye which has been cut, or put up his hand to rub the eye. If there is any particular reason to dread the latter accident, it may be proper to muffle the patients hands, and pin them down by his sides."*

Such are the accidents which are apt to occur from the operation of *Extraction* of the cataract. It is admitted, that, if the patient escape all these dangers, his sight will be as perfect as it is possible to be, after the removal of the lens.

Reclination.—In the performance of *Reclination* through the sclerotic, the following parts must necessarily be wounded, viz. the conjunctiva, sclerotic, choroid and vitreous humour; but it is not contended by the advocates for *Extraction*, that any per-

* Mackenzie.

manent bad consequences can result from this part of the operation; nay, it is admitted that the injury inflicted is altogether trifling in comparison with that caused in the operation of extraction.

It is objected to the introduction of the needle through the sclerotic, that the long ciliary artery or the ciliary processes may be wounded, and blood thereby effused into the chambers of the aqueous humour, obstructing the view of the cataract and of the needle, and thereby preventing the completion of the operation. Such an accident is possible, but it may in almost every instance be avoided. It has never happened in my own practice, although I have passed the needle through the sclerotic at least three or four hundred times, and I have never seen it occur in the practice of others.

It is also said that the retina may be wounded, either in the introduction of the needle, or in the act of reclining the cataract. This accident may take place, but it must be occasioned solely by unskilfulness on the part of the operator, so that if the objection hold good at all, it is in reference to the operator, and not to the operation. The same remark is applicable to the objection that the lens may be placed in contact with the iris or ciliary processes, and acting as a source of irritation, induce iritis. In the operation of *depression* this accident must have been of frequent occurrence.

Perhaps the chief objection to the operations by the needle in cases of hard cataract is, that the patient is constantly exposed to a return of the disease by a reascension of the lens, and therefore that the cure is only palliative.

This objection is certainly applicable to the operation of *Depression*, in which the lens, as I have stated, can be only imperfectly imbedded in the vitreous humour, and in cases in which the cells of the vitreous humour are disorganized. The lens also may perhaps return to its original situation if the operator entangle his needle in the substance of the lens, and in his endeavours to disengage it breaks up entirely the hyaloid cells. But I have never yet seen the lens reascend after being fairly *Reclined*, and deeply imbedded in the vitreous humour. Scarpa distinctly says that he does not recollect a single case in the whole course of his practice in which the lens returned to its original situation after being *Reclined*.

Undoubtedly, a passage is made by the lens through the vitreous humour, but its reascension through that passage is prevented, (to say nothing of the greater specific gravity of the lens than of the vitreous humour, to which I attach little importance,) by the subsequent closure of the passage by adhesion,

which we can scarcely doubt takes place, but which appears to have been entirely overlooked by authors. Every other part of the system when wounded undergoes a reparative process, and I cannot conceive the hyaloid membrane to be an exception to so general a law; and in the accounts of dissections of eyes which had been operated on by reclination, there is no notice of any such pervious passage through the vitreous humour.

I have had an opportunity of examining two eyes only which had been operated on by *Reclination*, and they were both from the same patient.

The following were the appearances presented.

Right Eye.—Pupil perfectly clear. The lens enveloped in its capsule was placed about midway between the iris and back part of the eye, and towards its outer side. It lay within about half a line of the retina, a portion of vitreous humour being interposed. It adhered firmly by its capsule to the hyaloid membrane, but had no attachment to the retina. There was no vestige of the course it had taken through the vitreous humour, the whole being equally firm and transparent. The hollow in which the lens was originally situated was partially obliterated, and the posterior chamber of the aqueous humour appeared larger than usual.

Left Eye.—The upper part of the pupil was partially obscured by a shred of opaque capsule, which adhered by a single point to the margin of the iris. The lens was in a similar situation to that of the right eye, not surrounded by its capsule, but reduced to about one-third of its natural size, and apparently in contact with the retina. It was closely surrounded by the vitreous humour, in which it appeared indented, but not adherent to it. It was of a pearly white colour and firm consistence. As in the right eye, the vitreous humour was uniformly transparent and equally firm, without the slightest trace of the passage through which the lens must have passed. The patient was 69 years of age, and I had operated upon him for cataract about two years previous to his death. He could read with either eye with the assistance of convex glasses.

Velpeau (Medecine Operatoire, Tom. i. p. 749,) mentions that he has examined the eyes of twelve individuals who had been operated upon for cataract by *Displacement*, and in every instance except one the cataracts had contracted adhesions with the retina and choroid, by means of the hyaloid membrane forming a sort of knot or cicatrix of about three lines in length.

We have thus the result both of experience and dissection in favour of the opinion that the *Reclined* cataract does not reascend. There can be no doubt that when the cataract is simply *depressed*, it will frequently return to its original place.

The objection to the operation of *Reclination*, which is considered by many to be of the greatest weight, is, that the lens remains a constant source of irritation, and that by its pressure and friction on the retina it is apt to induce chronic internal inflammation and amaurosis.

As the lens is imbedded and fixed in the vitreous humour, and as no motion exists between the vitreous humour and retina, it is clear that there can be no friction, and, besides, if there were motion between these parts, the surface of the lens is so perfectly smooth, that no injury would result. Again, allowing that the lens is in contact with the retina, which in the majority of cases I believe is not the case, the whole pressure it can exert will be proportioned to the difference in the specific gravity of the lens, and of the vitreous humour, but this difference is very trifling. The lens, if left to itself, is not heavy enough to sink to the bottom of the vitreous humour, but, at the same time, when once depressed, its difference in gravity is such as to prevent its being floated up to the surface again, even if it did not contract adhesions, or if the passage in the vitreous humour through which it had been depressed did not become obliterated. (Specific gravity of aqueous humour, 1.0003; do. of vitreous do. 1.0009; do. of lens do. 1.0790.) But the best argument which can be adduced is the result of the operation. Scarpa in speaking of internal ophthalmia followed by amaurosis, as taking place after the operation of *Reclination*, says, "This distressing accident has only happened to me in a single instance during my long practice." It cannot therefore be considered as arising from the pressure of the depressed lens, otherwise it would be of more frequent occurrence. I myself cannot say that I have witnessed any case of internal ophthalmia followed by amaurosis, which was distinctly traceable to the irritation arising from a reclined lens.

There is a very interesting case related by Scarpa of Signor Lattuada, a young man 25 years of age, in whose right eye there is no iris, and apparently no hyaloid membrane. The lens inclosed in its capsule is free from all attachment, and is perceived moving in the cavities of the eye in various directions. When he inclines the head forward, it comes in contact with the cornea, when backward, it falls to the back part of the eye, with the same facility as it would do in a watery fluid. If he remains long in the horizontal position, as during sleep, and consequently with the lens resting on the bottom of the eye, he has never experienced the slightest uneasiness, and he has never been affected with pain or inflammation of the eyes. By means of a convex glass he can distinguish well minute objects. In the left eye, the derange-

ment is less. There is a small strip of fringed-shaped iris at the temporal angle. The lens with its opaque capsule is suspended in its place by a short attachment, which it has preserved with the ciliary zone at the upper and temporal part,—a proof, it would appear, that in this eye the vitreous humour is not entirely disorganized and dissolved into water. There is no attachment whatever of the rest of the capsule or lens, and during the motion of the eyeball and head, it oscillates a little from before backwards. Surely the right eye of this individual ought to have suffered from internal ophthalmia and amaurosis, if either pressure or even friction of the lens on the retina be capable of inducing such consequences, admitting that original malformations do not always produce the same effects as when the results of disease.

One of the principal causes of the failure of the operations for the cure of cataract by Extraction is the violence of the inflammation which follows. So violent, indeed, is the inflammation in many cases, that the depleting measures required often are productive of irreparable injury to the general health of the patient. The argument employed by Mr Guthrie for operating on both eyes at the same time is, that the patient, should inflammation occur, may be able to bear up for once under the active treatment that may be requisite, although he might not be able to do so a second time, were another operation performed. It is not my intention to enter at present on the consideration of the soundness of this argument. I adduce it simply to show the severity of the inflammation that frequently follows the operation of extraction.

On the other hand, the operation of reclination, if properly performed, is rarely productive of much inflammatory action. So rarely, indeed, that it is almost never necessary to open a vein to subdue it.

Although the observations which I have made on the comparative advantages of the operations of *Extraction* and *Displacement* lead to the opinion that the latter is the more successful; still, as mere reasoning on such subjects often leads to false conclusions, I have endeavoured to obtain as correct an account, as possible, of the actual results of these two modes of operating, in the practice of different surgeons, and these strongly confirm the opinion, that *displacement* is the preferable operation, as is shown in the following tabular views.

By Extraction.

Operators.	*Cases.*	*Cured.*	*Relieved.*	*Failed.*
Graefe, Berlin, (1.)	19	18	—	1
Rosas, Vienna, (2.)	26	22	1	3
Daviel, (3.) .	240	207	—	33
Hotel-Dieu from 1806 –10, (4.)	70	19	6	45
Pamard, (5.) .	359	302	—	57
La Faye, (6.) .	6	2	2	2
Poyet, (7.) .	7	2	2	3
Roux, (8.) .	306	188	—	118
Pelletan, (9.) .	50	20	—	30
Dupuytren, (10.)	50	20	—	30
Jules Cloquet, (11.)	80	28	—	52
Fabini, Pesth. (12.)	94	71	—	23
Total,	1307			397

Or $30\frac{3}{10}$ per cent. of failures, or about three in ten.

By Displacement.

Operators.	*Cases.*	*Cured.*	*Relieved.*	*Failed.*
Graefe, (13.) .	14	12	—	2
Hotel-Dieu from 1806 –10, (14.)	43	24	4	15
Bowen, (15.) .	160	154	—	6
Lusardi, (16.) .	5034	4168	—	866
Dupuytren, (17.) .	306	263	—	43
Jules Cloquet, (18.) .	166	97	—	69
Morand, (19.) .	6	3	—	3
Total,	5729			1004

Or $17\frac{5}{10}$ per cent. of failures, or one and three-quarters in ten.

It is to be regretted that so few authors have given an account of the proportion of successful cases and failures, according to the mode of operating adopted. On looking at the above table, we must be at once struck by the great relative success of the operation by displacement.

In the tabular view are included a great number of cases ope-

(1.) Berlin Report of Clinicum Ophthal. 1833.
(2.) Report of Vienna Institution, 1832–33.
(3.) Mem. de. l'Acad. Roy. de Chir. Tom. v.
(4.) Tartra de l'Operat. de la Cataracte, 1812.
(5.) Velpeau, Medecine Operatoire, Tom. i.
(6.) Memoires de l'Acad. de Chirurg. Tom. vi.
(7.) Memoires de l'Academ. R. de Chirurg. Tom. vi.
(8.) Velpeau. Op. Cit. Tom. i. (9.) Do. (10.) Do. (11.) Do.
(12.) Kleinert's Repertor. Vol. v. part 3, page 3.
(13.) Report of Berlin Clinic. Ophthal. 1833.
(14.) Tartra de l'Oper. de la Cataracte, 1812.
(15.) Velpeau, Tom. i. (16.) Do.
(17.) Sabatier Med. Operat. Vol. iv. 1824. (18.) Velpeau, Tom. i.
(19.) Mem. de. l'Acad. Roy. de Chir. Tom. vi.

rated on by *Depression.* In as much, therefore, as the operation of *Reclination* is preferable to *Depression*, in the same degree ought the resulting success in such cases to be greater than that stated.

It is proper also to remark, that the operation of *Extraction* is usually performed only in the most favourable cases, whereas that by *Displacement* is had recourse to even in the most unfavourable circumstances, and it is evident that the apparent success would have been still greater from displacement, had that operation been performed only in those cases in which the operation of extraction was advisable. To show that such is really the fact, I subjoin a statement of the cases of *hard* cataract, without any complication, and in eyes *otherwise healthy*, on which I have operated. Under the head of successful operations, I have placed all those persons who were able to read moderate sized print, with the aid of cataractous glasses. Under the head of relieved, I have placed those who, though unable to read, were able to guide themselves without assistance. All others I have classed as failures. Of 179 cases of hard cataract *without any complication*, there were operated on by

		Cured.	Relieved.	Failed.
Extraction,	64	32	14	18
Reclination,	115	94	10	11

Proportion of failures by extraction $28\frac{1}{8}$ per cent.
Proportion of failures by reclination $9\frac{1}{2}$ per cent.

Causes of Failure.

Suppuration of Eyeball.	Atrophy of Eyeball.	Opact. of Cornea.	Obliteration of Pupil.	Amaurosis.	Total.
		Extraction.			
3	5	4	3	3	18
		Displacement.			
2*	3	—	4	2	11

Causes of partial failure.

		Extraction.			
—	—	5	4	5	14
		Displacement.			
—	—	1	5	4	10

* These are the only examples which have occurred in my own practice of suppuration of the eyeball following the operation of displacement, and are, I believe, to be attributed to the state of the constitution of the individual at the period of operation. The patient was a female nearly fifty years of age; the menstrual discharge had ceased a few months before; she was of a full habit, but apparently in good health, but, I have since learned, addicted to drinking. I operated on both eyes about mid-day. Nothing untoward occurred during the operation, the cataracts being reclined with facility. On examining the eyes, the following day, both corneæ were completely infiltrated with purulent matter, the conjunctivæ in a state of chemosis, the vessels large and tortuous, and the patient scarcely complained of uneasiness. In spite of vigorous treatment, the corneæ of both eyes burst on the third day, and their contents were discharged. This is the only instance in which I have operated on both eyes on the same day, a practice followed by many distinguished surgeons, but which is liable to many serious objections.

I have given in this table cases of *hard* cataract only, without any such *complication* as would preclude the operation of extraction, it being admitted that soft cataracts ought to be broken down by the needle, and that when the cataract is hard, but complicated with adhesions of the iris, obliteration of the pupil, diseases of the cornea, &c., the mode of operating, and the degree of success, will vary according to the peculiarities of each individual case. They could not, therefore, afford any means of comparison between the operations of *Extraction* and *Reclination*.

From what has been stated the following conclusions may be drawn.

1. That the safest mode of operating when the cataract is soft is by breaking it down, and thereby effecting its absorption.

2. That in all operations in which the needle is used, that instrument ought to be entered through the sclerotic, and not through the cornea.

3. That in cases of hard cataract, complicated with the various diseases of the eye and its appendages, mentioned above, the needle ought to be employed, the mode of operating being adapted to each individual case.

4. That hard cataract without such complications may be effectually removed by the operations of *Extraction* or *Displacement*.

5. That the operation of *Depression* is impracticable, and that attempts to perform it will be productive of the most injurious results.

6. That many of the accidents which may occur during the operation of *Extraction* cannot be avoided by any degree of skill or dexterity, and, therefore, form valid objections to the operation.

7. That the accidents which may occur during the operation of reclination arise from faults on the part of the operator, for as soon as the needle is entered, he has complete command over the eye. They do not, therefore, form valid objections to the operation.

8. That the resulting success from the operation of *Reclination* is very much greater than that from *Extraction*.

9. That in cases of failure of the operation by *Reclination*, the eye, in the majority of instances, is not left in so hopeless a condition as when the operation of *Extraction* has failed.

10. That, in consequence of the comparatively rare occurrence of violent inflammation after *Reclination*, there is infinitely less likelihood, than in cases of *Extraction*, of such depleting measures being required as may prove ruinous to the general health of the patient.

58, *Queen Street, Edinburgh.*

ART. VII.—*Observations and Experiments on Softening, Erosion, and Perforation of the Stomach.* By HENRY IMLACH, M. D. Extraordinary Member of the Royal Medical Society.

IN 1772, Mr John Hunter read a paper to the Royal Society of London, entitled "On the digestion of the stomach after death," which was afterwards published in his "Observations on certain parts of the Animal Economy." The account he has given of it is in the following words. "The appearance we allude to is a dissolution of the stomach at its great extremity; in consequence of which there is frequently a considerable aperture made in that viscus. The edges of this opening appear to be half dissolved, very much like that kind of solution which fleshy parts undergo when half-digested in a living stomach, viz. pulpy, tender, and ragged."

It appeared to Mr Hunter that this must be the process of digestion going on after death; and that the stomach, being dead, was no longer capable of resisting the powers of that menstruum, which it had itself formed for the digestion of food. This theory he supported, and endeavoured to prove from considerations drawn, first, from observations on the human subject, and second, from his experiments on the lower animals.*

Subsequent authors have canvassed this doctrine with considerable ingenuity, many supporting it warmly, while others, of equal authority as pathological observers, have denied entirely the justness of Mr Hunter's inferences with regard to the nature of this lesion of the stomach. It will be my endeavour to state, as shortly and clearly as I can, the opinions of some of the various authors who have treated at length of this curious affection, and to form a candid estimate of their respective claims to accuracy in proclaiming their ideas of the proximate cause of softening, erosion, and perforation of the stomach.

It is of course to be understood that there are not here to be included any observations on perforation of the stomach resulting from ulceration, gangrene, or putrefaction.

Before proceeding, however, with this part of our subject, it may be well to mention shortly the circumstances or conditions under which this softening of the stomach has been found to have taken place. These have been,

* These might perhaps have been enumerated in this place with advantage, but as Dr Carswell has already detailed the observations of Mr Hunter, as well as much of the earlier history of the investigation of this lesion, I shall content myself with referring to his paper in the 34th, and to the very admirable review of the works of Leuret and Lassaigne and of Tiedemann and Gmelin, contained in the 28th volume of this Journal, as the best and almost necessary introduction to the following remarks.

First, In the dissecting-room, where no accounts had been received of the state of the patient during life. The phenomena in these cases have frequently been well marked, and have been amply illustrated by observations and experiments on the lower animals from the time of Mr Hunter down to the present day.

Secondly, They are said to have been found after death in patients who had previously exhibited a certain train of morbid symptoms indicatory of affection of the stomach; and,

Thirdly, They have frequently been observed in individuals who had been affected with diseases of other organs, but in whom, though the progress of their cases had been accurately watched, no symptom manifested itself that could excite in the mind of the most attentive physician a suspicion of the slightest gastric affection.

It will soon be evident that different authors have been led to adopt one or other of the hypotheses which we are now to review, respecting the nature of softening of the stomach, according as this affection has presented itself to their observation, under one or other of these conditions.

I have already hinted that there are two opposite opinions with regard to the proximate cause of softening of the stomach. The first is, that it is merely the result of the chemical action of the gastric juice upon the stomach after death, this viscus being supposed to be then no longer capable of resisting, or at least of obviating ordinary chemical affinities, and to allow the production of the appearances in question, which seem to be precisely those that would result as a consequence of digestion, were we to introduce the stomach of a dead animal into that of a living one. This was the opinion of Mr Hunter, and we shall immediately trace it more fully in the experiments and inferences of Mr Allan Burns, and Drs Carswell and Hope.

The second theory that has been brought forward to explain the nature of the lesion under consideration ascribes the phenomena in question to a peculiar morbid process going on in the living substance of the organ. Here, however, there are various opinions about the essential nature of this morbid action; some regarding its proximate cause as being paralysis, others again as a special irritation, or a peculiar kind of inflammation, or some unknown alteration in the nutrition, of the tissue of the stomach. These shall afterwards be mentioned in their order.

Mr Allan Burns, writing on this subject in 1810, informs us that he had seen nine cases of complete perforation of the stomach of the kind under consideration, and likewise many others, in which the mucous membrane had been dissolved in various degrees. He found that where the coats of the stomach are softened by the gastric juice, the vessels of that organ are unable

to resist the force of the syringe in injecting the body. In such subjects, therefore, he found the cavity of the stomach filled with wax, and likewise masses of it collected between the coats of the viscus. This corroborates an observation of Mr Hunter in the paper already quoted, that "in the affected parts, upon squeezing the blood from the larger into the smaller branches, it was found to pass out at the digested ends, and appear like drops on its inner surface." Such an occurrence as that which Mr Hunter has mentioned of course cannot take place in emaciated and anasarcous individuals, in consequence of their exsanguine state.

Mr Burns has related a very remarkable example of this erosion of the viscera. "Some time ago," says he, "I had occasion two days after death, to open the body of a very emaciated and anasarcous young girl, who had died from scrofulous enlargement of the mesenteric glands. On raising the coverings of the abdomen, the stomach, which was empty, presented itself to view with its front dissolved. The aperture was of an oblong shape, about two inches in its long diameter, and an inch in its short, with tender, flocculent, and pulpy edges. This I demonstrated to the pupils attending my class; and I especially called their attention to the fact, that the liver, which was in contact with the hole, had no impression made on it. Having proceeded thus far, I placed all the parts as they had been, and laid the body aside in a cold situation for two days. Then I opened it again, in the presence of the same gentlemen, and we found that now the liver, where it lay over the dissolved part of the stomach, was pulpy; its peritoneal coat was completely dissolved, and its substance was tender to a considerable depth. At this time the other parts of the liver were equally solid as before, and as yet every part of the subject was free from putrefaction. The posterior face of the stomach, opposite to the hole, was dissolved, all except the peritoneal coat; at least the internal coats were rendered pulpy and glutinous. The peritoneal covering had become spongy, and more transparent than it ought to have been. There was no blood contained in either the vessels of the stomach, or other abdominal viscera. The appearance of the dissolved part of the stomach, and the digestion of that part of the liver which was over the hole, will be sufficient to prove that the solution, in this case, was really produced by the gastric juice."

Dr Sharpey, now of University College, London, has informed me, that, some years ago, the same appearances presented themselves to his notice in a body he was preparing for dissection; and that he had performed on it an experiment quite similar to that we have just now detailed, with precisely the same results.

The observations of Mr Burns led him to conclude, that digestion of the stomach after death is neither so rare in its occurrence, as some have imagined, nor confined to such subjects as had been, previously to death, in a healthy condition; and they have also demonstrated, that other parts of the stomach besides the large end may be acted on by the gastric juice. There are very few dead bodies in which the stomach is not in some degree affected; and one who is acquainted with dissections can easily trace these gradations. To be sensible of this effect, nothing more is necessary than to compare the inner surface of the great end of the stomach with any other part of its inner surface; the sound portions will appear soft, spongy, granulated, opaque, and thick; while the others will appear smooth, thin, and more transparent.

Dr Carswell of London, who has paid considerable attention to this subject, has illustrated the investigation by a variety of experiments upon rabbits, some of which he has delineated, along with other drawings of this lesion as occurring in man, in his "Illustrations of Morbid Anatomy." His original paper, which was read before the Royal Academy of Medicine of Paris in 1830, will be found in the Medical and Surgical Journal of Edinburgh, Vol. xxxiv. p. 282. In the article, "Softening of Organs," in the Cyclopædia of Practical Medicine, Dr Carswell has given an account of the true inflammatory softening of mucous membranes, and has pointed out in a very clear manner, the anatomical characters which distinguish this inflammatory softening from the one which forms the subject of this paper.

From a consideration of the matters and experiments detailed in the works referred to, Dr Carswell has deduced the following conclusions. 1. Softening, erosion, and perforation of the stomach may and do take place in healthy animals killed during the act of digestion. 2. These appearances are owing to the gastric juice, the natural secretion of the stomach. 3. The properties of this fluid in a stomach which has undergone one or other or all of these changes, do not differ from the properties its possesses in a healthy living stomach during the act of digestion. 4. Acidity is in these two circumstances an invariable and essential property of that fluid, and solution of the coats of the stomach, like that of the food, is a necessary consequence,—a chemical effect of its acidity. 5. Softening, erosion, and perforation are produced equally in other organs, such as the liver, spleen, intestines, diaphragm, peritoneum, and pleura. 6. In all these cases, the gastric juice is the chemical agent which produces the particular state or states, the place and extent of its action being regulated by position, gravitation, and imbibition. 7. The effects resulting from the action of the gastric juice show themselves not only in a

dead animal body, but likewise as quickly out of the body, in dead organs into which it is introduced. 8. All the changes observed in rabbits, whether softening, or erosion, or perforation, are produced after death. 9. The solvent power of the gastric juice cannot be exerted on the living tissues.

To the correctness of the more essential of these conclusions I fully subscribe, from having witnessed the successful repetition by my friend Dr J. Y. Simpson, of some of these experiments upon carnivorous animals. He found, it is true, a longer lapse of time requisite for the production of these lesions than what is mentioned in Dr Carswell's statement. This may perhaps be accounted for by the difference in the kind of animal on which they respectively operated, or by some other fortuitous circumstance; but the results were the same in the one class of animals as in the other,—and whether the contents of the stomach were allowed to remain in that viscus itself, or were transferred to other parts of the body, as for example, to the trachea, to the urinary bladder, or to the cavities of the heart. An account of some additional experiments on this subject, made by Dr Simpson and myself conjointly, will be given in a subsequent part of this communication.

The observations that have been made on man seem sufficient to justify us in holding the opinion, that the mode of solution in the human stomach after death is the same as that in animals.*

I might here have introduced the opinions of M. Andral, Dr Hope, and others, on this side of the question, but this appears unnecessary, as they seem to me not to present anything newer or more forcible than what has been already given. I shall, therefore, now state somewhat briefly the arguments upon which other authors have founded for themselves the second theory I formerly mentioned, viz. that this softening, erosion, and perforation of the stomach is the result of a peculiar morbid process, or diseased action going on in the living texture of the organ, and manifesting itself during life by a train of well-marked symptoms.

It will save much repetition of description if I be allowed at this place to detail the morbid appearances as they have been observed by most writers, and to sum up the chief symptoms

* It is stated in the Journal Complementaire des Sciences Medicales, Vol. xxxviii. p. 95, &c. that the experiments of Dr Carswell have been repeated by M. Sandras, not only on six rabbits, but also on three guinea pigs, two cats, and three dogs. This experimentor has never seen the stomach perforated, and only on two occasions has he found it softened to any extent. Hence he argues that no inferences with regard to man can be drawn from Dr Carswell's experiments. Nothing, however, is more easy than the explanation of these contradictory statements. M. Sandras, from being in too great a hurry to prove Dr Carswell to be in the wrong, did not allow the period of time to elapse which is found necessary for the success of these experiments.

that have been recorded of this so called disease.* We shall then have much facility in comparing together the different authors who have argued for the existence of this disease. This we have the less hesitation in doing, for, though some of them have certainly started original ideas, the majority have as certainly helped themselves liberally to the opinions and even expressions of preceding writers.

But to proceed with our subject. In the first stage of softening, the villous coat is found thinner and paler than in the healthy state. Neither around the softening, nor underneath it, nor in the affected part itself, nor even in the portion of the mesentery corresponding to it, are there found any injected vessels, to indicate pre-existing inflammation. When viewed through a magnifying glass, the villous membrane appears flaccid, its villous prominences are collapsed, pale, whitish, and yet seem to retain their proper texture, but on being rubbed in the slightest manner, even by the point of the finger, it is converted into a thick mucous-like pap. If in the softened part we follow out the branches of the blood-vessels situated under the villous coat, in many individuals we see them diminished where they run under the softened part, and less patent and less filled with blood than in the healthy state. No thick mucous fluid is to be observed adhering to the softened parts. When the softening is perfect the colour of the villous membrane is pale, or white, frequently approaching to a bluish, appearing either continuous, or in long and narrow vibices, or rather in spots irregularly rounded, and lying more or less close to each other. These bluish portions appear prominent both to the sight and to the touch, and at their termination the healthy parts are seen well marked. The affected places of the mucous membrane are pale, very thin and soft, and converted into a kind of clear mucus, pale and semitransparent. This mucous substance forms a thinner stratum than the proper membrane in a state of health; so that one examining it carelessly would suppose that the mucous coat had been destroyed and the cellular tunic left bare. If the product of the softening process has disappeared, the continuity of the villous membrane is found dissolved, with smooth margins, as if cut, and in its base the subjacent cellular tissue is perceived pale, and without injected blood-vessels. In some cases a large portion of the villous membrane has disappeared; then indeed the solution of continuity is not accurately circumscribed; for the membrane is more and more thinned at the edges, which seem irregular, and as if cut obliquely.

* In the execution of this I have been much assisted by the perusal of a thesis published at Bonn, 1832, by Josephus Steeg, de Mollitie Membranæ intestinalis Mucosæ et de ejus sequelis apud infantes.

The substance being lost in many places at the same time, what remains of the villous coat appears so softened, as not to have more consistence than the mucus commonly found in the intestinal canal. But when the softening is of less extent, no trace of it usually remains in the circumference of the dissolved part, the margins of which are smooth, and as it were accurately cut. The muscular coat and the peritoneum covering it are often more or less softened and pale; and the process of softening continuing, the intestinal tube is at length perforated.

My friend Dr Allen Thomson has beautifully delineated, in a coloured drawing made by him from the body of a child that died without having exhibited any symptoms of gastric irritation, in the Hôpital des Enfans Trouvés, a stomach which presented the lesion just described. In some portions of it where the destruction is not so complete as it is in the great sac, there is a very striking appearance, as if the fibres of the viscus were separated from each other by a gelatinous mucus. This seems to me to be the result of imbibition of the fluids from the cavity of the stomach, and was probably neither more nor less than the first inroad of the gastric juice upon the dead textures. This appearance has been much insisted on by Cruveilhier, as indicative of morbid action; but the farther consideration of this must be deferred to a subsequent part of this paper.

It would be improper to omit mentioning, that in several instances, as delineated by Dr Hope, and in most of the experiments of Dr Carswell, there was a marked alteration in the colour of the blood. "The blood-vessels," says Dr Carswell, "distributed on the softened parts, and also on every part where imbibition had occurred, no longer presented the red and blue ramifications, which are remarked in the healthy state, when they contain venous and arterial blood. They formed brownish, brownish-black, or almost pure black arborescences. In the great sac of the stomach, the brownish colour was most common, while elsewhere, in proportion as an approach was made to the origin of these vessels, the colour became deeper and deeper,—a circumstance evidently depending on the greater quantity of blood contained in the latter situations. In those parts, on the contrary, where the liquids could not come in contact with the vessels, or be conveyed to them by imbibition, the vessels preserved their natural colour, and formed a very striking contrast by their redness with the deep tint of the others. The intercostal and diaphragmatic vessels where the great sac of the stomach rested on them, even though still covered by the peritoneum, presented the same coloration, which was confined exactly to the space covered by this portion of the stomach. The same state of the vessels was observed in the chest, in those places traversed by the liquids which had passed through the

diaphragm. The form of the vessels was unaltered, and their parietes were even entire, where the coloration of the blood was complete. In this state, the blood seemed less fluid than natural, but it had not separated into clots, or little striated stains, as is observed so frequently and so remarkably in man." In these facts every one must recognize the chemical action which it has been ascertained that all acids produce on the blood when mixed with that fluid.

It has generally been asserted that this lesion occurs most frequently in infants about the period of weaning, but the same appearances may be seen, with but trifling if with any variation, in adults of either sex. There are some slight differences in the accounts given by different authors of the symptoms of this so called disease, and, as nearly as I can understand them, the chief indicative signs, as they present themselves to view in children, may be enumerated as follows.

This disease is frequently preceded by premonitory symptoms, such as loss of appetite, peevishness, restlessness and want of sleep; the tongue is covered with a whitish or yellow fur, and a sour smell is perceived from the mouth, in the cavity of which aphthæ also frequently occur; constant diarrhœa comes on, in the progress of which the little patients become emaciated to a wonderful degree; the neck becomes wrinkled, and a dry and pituitous cough either has existed from the beginning or comes on at a later period. For the most part there is great thirst. The infants cry, or, their strength being much exhausted, lie on the back with the eyes fixed and half closed, their countenance being much disfigured, very pale and bloodless. The diarrhœa after a short time is often diminished, but soon returns with more violence; the skin of the hands and face becomes cold; the pulse irregular, small, scarcely to be counted; and the respiration quickened and short. The infants show no sign of pain upon gentle pressure of the abdomen, but at length die wasted away, their powers being exhausted, quietly and without any convulsion.

In other cases the disease begins with fever; the thirst is insatiable, the pulse much accelerated, with frequent diarrhœa; there is restlessness and frequent screaming, which in a short time passes into continued crying. The legs are drawn up upon the abdomen, which is hard and tumid, and on the application of external pressure, screams and distortions of the face sufficiently indicate pains in the abdomen; the emaciation increases; the countenance becomes pale, frequently also flushed, and wears an expression quite peculiar to suffering. The sleep, which at best is but light, is much broken by continual moaning and screams. The diarrhœa at last remits, convulsions and distortion of the eyes come on; the extremities, though sometimes

hot, become at length cold; the pulse is frequent, irregular, small, and scarcely perceptible; occasionally somewhat hard. Cough and mucous rhonchus come on, the breathing becomes difficult, short and stertorous, and at length stupor and death conclude the scene. Other symptoms are frequently present, which indicate in many cases an inflammatory affection of the chest, and in others hydrocephalus.

In Hufeland's Journal for 1811, Jaeger, to whom I have already alluded as the author of this theory, first promulgated his ideas of the proximate cause of this affection. This he imagines to be a kind of paralysis of the nerves which supply the stomach, viz. the *nervi vagi* and the great sympathetic. As a consequence of this there is both a change in the gastric juice itself, and a reaction of the intestinal canal upon its contents. Thence arises an immoderate generation of acetic acid; and thus the degeneration is the result of a kind of chemico-animal process, the phenomena of which, having arisen from a morbid change, appear during the life of the patient. He mentions that he himself had attended, and had dissected six cases of this disease, all of which occurred in infants, and exhibited the symptoms and organic lesions we have just mentioned. In some of them he noticed what he conceived to be inflammatory appearances, and says very distinctly, that, for the most part, none of the usual traces of a more violent inflammation appeared either at the affected place, or in other parts of the stomach; but, in one case, the whole circumference of the opening thus made was of a pretty dark-red colour; in another case he only found the cellular coat, under the soft and swollen mucous membrane, a little reddish; and in a third the peritoneum, the only remaining coat, was rather of a rose colour. He also found that in all these cases the stomach contained chyme, and in one instance firm lumps of coagulated milk. In this last case turnsol paper, on being introduced into the stomach, which gave an acid smell, was immediately turned of a strong red colour.

From the details of the appearances found in the other organs of these individuals I confess there seems to me strong reason to suspect that many of them died actually from hydrocephalus, and others from inflammation of the lungs, any affection of the stomach being merely an accidental coincidence.

Zeller is the next author I have met with who has bestowed some attention upon this subject. He published his Inaugural Dissertation "De Natura Morbi Ventriculum Infantum perforantis" at Tubingen in 1818. The conclusion he has attempted to draw is the result of the observation of a few cases in which acute hydrocephalus and this change of texture in the stomach followed the recession of a miliary exanthema. Following out this observation, he supposes that the spontaneous perforation

of the stomach of children may arise from whatever produces irritation of that viscus, as sympathy with the external surface of the body when this is exposed to the effects of cold, or of some peculiar states of the atmosphere, improper nourishment, &c.; and that its proximate cause is primarily an inflammatory state of this portion of the intestinal tube, passing afterwards into the state of paralysis. When the organ is thus paralysed he supposes it is no longer able to resist the solvent action of the gastric juice, especially at the splenic end, where the blood-vessels are most numerous, and where, he alleges, though without stating any proof, the nerves are fewest.

He has mentioned the disease as endemic at Stuttgard, but without giving any proof of its being so; and this assertion of Dr Zeller's may be easily explained upon the circumstance that Jæger, the only person who had written on this affection at this time, was himself an inhabitant of Stuttgard, and consequently the only published account of the disease had been taken from it as it occurred in that city.

M. Laisné, in his "Considérations Medico-Légales sur les Erosions et Perforations spontanées de l'Estomac," published at Paris in 1819, points out the dangerous errors which might arise in legal medicine from mistaking this affection of the stomach for the effects of some acrid poison, which he says it resembles very much both in the suddenness and severity of its symptoms, and in the morbid lesions to which it gives rise.

M. Laisné has thought fit to deny at once Mr Hunter's hypothesis, which he asserts to have been founded upon a case Mr Hunter states himself to have seen, in which the stomach was found perforated by the gastric juice at its splenic extremity, in a man who died of starvation. This case I have been unable to find; at any rate it is not mentioned by Mr Hunter in his paper on Digestion of the Stomach after Death; and I rather think M. Laisné must have misunderstood the cases which have actually been detailed, or not have read the memoir for himself. The opinion he entertained of the essential nature of this lesion will be best understood from his own words. After refuting the old hypothesis of acridity of the humours producing degeneration of the solids, he says, "it is the universally received opinion, that the first cause of the erosion is not in the fluids; it consists in reality in a special irritation of the solids; only it is possible, and in fact it frequently happens, that, by and by, the juices of the part acquire consecutively a solvent property. Thus we often see the lint and the charpie employed as dressings, to be altered or dissolved by the purulent or ichorous matter of the sores or ulcers. Need we then suppose the presence of a matter, alkaline or acid, to explain the fusion of a solid or its erosion? Was it not life which concreted the fluid

from which results the formation of the solid? and will it not suffice, that life may so modify itself that this solid in its turn may become fluidified?" In this manner, he thinks he has explained the phenomenon, and considers it to be as molecular, and consequently as little apparent as nutrition itself, but to be the inverse of the latter process. He supposes likewise, along with Professor Chaussier, but without any foundation in fact, that it commences with an extraordinary development of the capillary vessels, which no one has ever seen, and thence passes gradually into the state of perfect disorganization.

By far the fullest statement on this side of the question which has hitherto been published in the English language is certainly the paper of Dr John Gairdner, contained in the first volume of the Transactions of the Medico-Chirurgical Society of Edinburgh for 1825. This essay contains several new cases and some valuable original matter. The propositions which Dr Gairdner has endeavoured in this paper to support are the following.

1. That erosions and perforations of the stomach, and of other parts of the alimentary canal, which do not appear to be effected by ulceration, are frequently found in the bodies of infants, and occasionally in adults, whose symptoms during life would not lead any one to suspect disease of that canal; but who appear, both from indications during life, and from the phenomena on dissection, to be the victims of other diseases, more particularly in pneumonic, phthisical, apoplectic, and hydrocephalic cases, and in continued fever, puerperal peritonitis, and puerperal convulsions.

2. That similar erosions and perforations are found in the bodies of infants, whose death is the result of a peculiar disease, distinguishable in the living subject by very marked symptoms, which are such as to suggest to the mind of the practitioner the idea that the alimentary canal is the seat of the affection.

3. That in both these descriptions of cases, the erosions and perforations are produced by the action of the fluids of the alimentary canal after death.

4. That in cases of the first description, it is probable that the erosion often happens without any previous disease of the eroded parts; but that in cases of the second class, there does appear to be sufficient evidence of the existence of certain organic changes in the living subject, by which some portion of the alimentary canal is so altered, as to be rendered more easily soluble after death by the action of its contents.

5. That erosion after death does not always follow this morbid alteration, a circumstance probably to be imputed to a deficiency in the quantity or solvent power of the contained fluid.

The facts upon which he founds his opinions are cases of the affection collated from different authors, as well as four others which occurred in his own practice. In three of these it supervened on weaning, while in the fourth case the infant was only sixteen days old. The first infant in which he found it, died of tubercular phthisis. What is singular enough, two of the other cases occurred in the same family. The symptoms in both were the same; but the second of them only was examined after death, and the existence of this lesion in the first was merely an inference drawn from the similarity in the symptoms, and the supposed identity of hereditary constitution. Professor Hamilton, and Dr Gairdner himself, at the time regarded this as a very severe case of the disease called weaning-brash, the *atrophia ablactatorum* of Dr Cheyne: Yet upon these two cases Dr Gairdner rests much of his hypothesis. The fourth infant seems to me to have died of inflammation of the left side of the chest. *

The symptoms which Dr Gairdner remarked in these cases, the second and third of which only seemed to him to exhibit the genuine character of the primary affection, as indicative of gastric disease, were very similar to those I have already mentioned. In none of them, however, did he observe the violent crying, and sudden movements as if from tormina, so frequently mentioned by other writers.

With regard to the theory of this disease, Dr Gairdner thinks it pretty evident that these erosions and perforations do not arise from ulceration, for they are found either without any indications of vascular action, or with only some slight redness of the villous coat, such as has been proved by Dr Yelloly to be consistent with the most healthy state of the stomach. Besides, there is no pus formed, nor any adhesion of the perforated viscus to the neighbouring parts; and the edges of the opening, instead of being granular, are ragged and fringed. It is also clear that, had the perforation existed for any length of time before death, there must have been effusion of the contents of the bowel, and extensive peritonitis. He therefore adopts in part the Hunterian theory, and ascribes the perforation to the solvent action of the liquids of the alimentary canal after death.

It is worthy of mention, that all the eroded and perforated stomachs of man and animals which have fallen under Dr Gairdner's notice contained some portion of alimentary matter. He is, however, convinced, from all that he has seen and read upon

* It cannot but be regarded as unfortunate for the progress of pathological science, that Dr Gairdner had not an opportunity of inspecting the body of the second child, whose case he has described; as a want of correspondence in the morbid lesions seen in its stomach, and in that of the child which he examined, (a circumstance which would most probably have been observed,) must at once have convinced his acute mind of the falsity of the theory which he was led to adopt.

the subject, that there is a disease primarily affecting the stomach, and sometimes also other parts of the alimentary canal, extremely dangerous in its nature, distinguishable in the living subject by very marked symptoms, and displaying after death the appearances described above; that similar appearances often occur in combination with, or consecutive upon, other dangerous diseases; and that in the latter case, either there is no disease of the stomach during life, or the character of such disease, if it do exist, is so modified by the other affection with which it is blended, as to render the diagnosis extremely difficult. Dr Gairdner goes on to state that "the peculiar softening of the coats of the stomach and bowels, which occurs in the infantile disease above described, appears to render them a more easy prey to the digestive power of their own fluids; yet, we have seen, that, even in this gelatinous state, the canal is sometimes found entire, which can only be explained by the supposition of a deficiency, either in the quantity, or in the solvent power of its contents. This softening from infiltration of the fluids between the coats in truth, constitutes the only real disease of the alimentary canal in these cases; since those cannot be called *morbid* appearances, which are not produced during life."

M. Desbarreaux-Bernard, in his "Essai sur les Perfortions spontanées de l'Estomac, observées sur des sujets Morts à la suite de violents Douleurs ou des Grandes Operations (Paris, 1825,)" has detailed the particulars of six cases in which erosion and perforation of the stomach was found on the dissection of individuals who had died in consequence of severe injuries, and who had experienced violent pain, either when submitting to the operations of the surgeon, or from extensive burns and comminuted fractures.

In all of these the stomach presented the dark-gray or black colour, and in two of them in which the diaphragm had been perforated, the lungs also were attacked, partly dissolved, and blackened in a similar manner.

His opinion of the proximate cause of the lesion is the same with that of Professor Chaussier, who thinks "that the cause of the spontaneous perforations is owing to a special irritation of the tunics of the stomach, which determines the secretion of an acrid and corrosive liquor, that turns its activity against the tissue from which it was secreted, and against that on which it spreads itself." The exciting cause in these cases he imagines to be the nervous affection of the brain arising from violent pain, acting through sympathy upon the stomach and there producing irritation.

M. Louis has devoted a considerable portion of his volume of "Mémoires ou Recherches Anatomico-Pathologiques," printed at

Paris in 1826, to the consideration of softening with thinning and destruction of the mucous membrane of the stomach. He commences with a relation of the cases of twelve individuals, who died in the Hôpital de la Charité, and in whom he found the appearance of which we now speak. In several of these he found the degeneration had given rise to perforations of the viscus, and to a lesion having precisely the anatomical characters which we stated so fully, when commencing the consideration of this the second theory. To the history of each of these cases he has attached a few reflections that are worthy of perusal, and, at page 48, he gives a general summary, which we may consider with attention.

In this he gives a review of the state of the mucous membrane of the stomach in the cases previously detailed. The dimensions of the stomach were variable, being sometimes larger, and sometimes smaller, rarely of what one would call a medium capacity. Externally the bowel presented nothing remarkable; but the inner surface, in some part or other of its extent, was of a pale blue colour; this was disposed in lines, and the difference between it and the healthy parts was as remarkable to the touch as to the sight. Nor were the margins abrupt, as in ulceration, but there was a gradual transition at the edges from the one state into the other. In the points corresponding to the lesion, the mucous membrane was pale, of great tenuity and softness, transformed into a kind of glairy mucus, semitransparent, of the thickness of the mucous membrane of the colon, sometimes less, so that it seemed in many cases, on close inspection, as if the mucous membrane was entirely destroyed, and the cellular coat almost quite bare. The vessels appeared very large and empty on the exposed surface, and when there existed mucosities in the stomach, there was none found on the abraded parts.

The colour sometimes varied from this bluish colour to a pale, white and opaque rose, or even gray; sometimes it was bluish or white, with red or black spots. Hence it would appear that the colour is of little importance as an essential character of this lesion. When the lesion presented itself under the form of large and straight lines, it was almost equally distributed over the whole surface of the stomach; when, on the contrary, it was continuous, it occupied the great extremity of the viscus, was seldom limited to the great *cul de sac*, and existed sometimes at the same time near the pylorus and the cardia.

The observation of this affection is a matter of frequent occurrence in M. Louis' experience, and he himself tells us that it is to be found in about one-twelfth of all the bodies that are opened. In most of these it occurs as a complication of some other disease, more especially of *phthisis pulmonalis* and of *en-*

cephalitis, though often enough, according to him, as a distinct disease, which may be recognized by its train of well marked symptoms, which, as they have already been enumerated, it would be quite useless to restate.

From the remarks on some cases of *gastritis* with thickening and other alterations of the mucous membrane of the stomach, which M. Louis had added in this memoir, his opinion of the proximate cause of this lesion would seem to be, that it consists in an inflammatory state of the bowel: and he has subsequently stated the same idea in some of his other works. To his last opinion, however, we shall advert before concluding this communication.

Dr Camerer has published a thesis under the sanction of Professor Autenreith of Stuttgard, on this softening of the stomach, and we may consider that in it we have the Professor's own opinion expressed. In addition to the symptoms of this affection already mentioned, Dr Camerer finds it to be attended with severe tormina and smart fever. The investigation of its causes has led the author, along with Professor Autenreith, to make some interesting experiments on the lower animals, in the course of which they have confirmed the accuracy of the experiments of Hunter, Gairdner and Carswell, in the same line of research, and have found that whenever an animal is killed during the process of digestion, the stomach, under certain circumstances, is liable to be eroded in the manner described. They have also performed several original experiments:—thus they mention, that "a fluid collected in the stomachs of two children who had died of a gelatiniform ramollissement of that viscus, was introduced to the amount of a drachm, into the stomach of a man not long dead, which was then kept for twelve hours, at a temperature 77° Fahrenheit. At the end of that period, the membranes of the stomach were found dissolved through to the peritoneum, wherever the fluid had been in contact with them. The same fluid was introduced into the stomach of a living rabbit without producing any bad effect, and on the animal being killed, its stomach was found in the most healthy condition. On the contrary, another portion of the same fluid having been deposited in the stomach of a rabbit after death, its parietes after a certain period exhibited a pultaceous softening." They also found the following experiment to succeed, viz. that on cutting the nerves of the stomach, to wit, the *par vagum* of each side, and the splanchnic branches of the great sympathetic, in a living animal, the lesion was induced in the living but paralyzed organ, by the natural gastric juice, by the fluid extracted from the stomachs of children who had died of gastromalacia,

(as some call softening of the stomach), or even by the introduction of diluted acetic acid.

From these observations, then, they conclude, that "the stomach is enfeebled, almost paralyzed, in this malady, and that there is, moreover, an affection of the *par vagum* of an inflammatory nature. They have been led to this latter conclusion, 1*st*, By frequently observing an unusual hardness in the *Pons Varolii* and *Medulla oblongata*, on dissection of subjects dead of this disease, the other parts of the brain retaining their natural consistence; and 2*d*, by the almost invariable accompaniment of respiratory disorder in softening of the stomach. This inflammation of the pneumogastric nerves ends in paralysis of the same nerve, as shown by cessation of vomiting and of diarrhœa, a little before death. But as the vascular system is not proportionally impaired, as proved by the continuance of the febrile phenomena, the gastric juice continues to be secreted, and that of extraordinary acidity, so as to be capable of dissolving the coats of the stomach, already in a weakened state."

I should not have introduced the opinion of M. Billard on this subject, had it not been for two very good drawings of the lesion that he has given in his "Atlas d'Anatomie Pathologique," intended to illustrate his "Traite des Maladies des Enfans," (Paris, 1828.) The cases referred to were of *muguet*, and the symptoms preceding death, as might be expected, were those of gastritis: so that I do not conceive our author by any means to have sufficient evidence of the truth of the hypothesis he has expressed in the following words:—"What then are we to conclude from the preceding facts and considerations, but that the gelatiniform ramollissement of the stomach consists in a disorganization of the mucous membrane of this organ caused by an acute or a chronic phlegmasia; that this disorganization has for its characteristic, accumulation of serosity in the parietes of the organs, swelling and gelatinous consistence of the mucous membrane in a point generally sufficiently circumscribed, situated most commonly in the great curvature of the organ, and round which the membrane presents traces more or less evident of an acute or chronic phlegmasia; that the disorganization of the mucous membrane overcoming its cohesion may give rise to spontaneous perforations, which speedily cause the death of the patient; that it may develope itself not merely about the time of the first dentition, but likewise in very young infants."—P. 332.

Dr G. F. Beck, in his inaugural dissertation, published at Tubingen in 1830, has given an account of what he considered an epidemic of this disease, which occurred in that city during the summer of the same year. He had ascertained the exist-

ence of twelve cases only, and this number, I think, can scarcely constitute an epidemic. They, too, were discovered in individuals who had died of acute hydrocephalus, pectoral diseases, or acute exanthemata.

The disease is said to have occurred epidemically also during the same year at Jena, near Weimar, and was described by De Rein in his "Dissertatio Inauguralis Medica de Gastro-enteritide Infantum, anno MDCCCXXX. Jenae observata." During the course of the summer and autumn there occurred *four cases.*

Fleischmann has attempted to explain the frequent occurrence of this softening at the splenic end of the stomach, from its communication there, both by nerves and by the *vasa brevia*, with the spleen,—an organ which he conceives is very considerably affected in this disease, and which, probably, gives rise to many of the symptoms that have been attributed to the gastric affection.

It is perhaps scarcely necessary here to allude to the opinion of Mr Charles Winter, of whose paper, entitled "On the real nature of Gelatiniform Ramollissement of the Stomach," an abstract will be found in the first volume of the Dublin Journal of Medical and Chemical Science for 1832. The proximate cause of this lesion he considers to be "a predominant venosity."—"The icterus and erysipelas," says he, "of newly born infants, induration of the cellular tissue, aphthæ, and gelatiniform ramollissement of the stomach, are affections of the same nature, often arising from the same causes, and existing in the same individual." This cause he supposes to be a pathologic state of the venous and capillary systems; but he thinks that the veins alone are primarily engaged, and that the affection is but secondarily transmitted to the capillaries. It does not seem easy to understand in what a predominant venosity consists, or how any such pathologic state should operate in producing the lesion in question.

Reference to more works on this subject may be found in the very learned thesis of Baumgarten-Crusius "de Gastro et Entero-Malacia Infantum," published at Berlin in 1831, wherein is contained a most ample catalogue of all the authors who have written papers on softening of the stomach.

Before drawing this paper to a close, it only remains for me to speak of M. Cruveilhier, who in 1821 published his "Medecine Pratique éclairée par l'Anatomie et la Physiologie Pathologiques;" and in 1834, (I think,) the tenth fasciculus of his "Anatomie Pathologique du Corps Humain," containing his opinion with regard to the proximate cause of this lesion. M. Cruveilhier entertains not a doubt of the existence of this as a disease *sui generis*, and thinks he saw it occur epidemically

among infants in the months of August, September, and October 1819, at a time when intestinal affections and intermittent fevers prevailed to a great extent. The idea he entertained of its proximate cause at the time of his first publication he has expressed thus:—" The acute spontaneous perforations are always preceded by a gelatiniform ramollissement, with thickening of the parietes of the organ. These may have their seat in the small or in the great intestines, as well as in the stomach; they have been observed even in the œsophagus. The gelatiniform ramollissement proceeds always from the interior to the exterior. There exists at first a mere separation of the fibres by a gelatinous mucus; by and by the fibres themselves are attacked, become semitransparent, and at last disappear; so that the softened stomach resembles a transparent jelly rolled round like a tube or portion of a tube. If the gelatiniform disorganization be complete, the disorganized parts are by degrees removed, and the parts that remain seem thinned. In all the cases of perforation of the stomach or of the intestines in consequence of this alteration which I have seen, the part so altered, and the textures in its vicinity, present neither change of colour, vascular injection, nor gangrenous odour. The conversion of the stomach or the intestines into a jelly by boiling gives a perfect idea of this kind of alteration. Can one mistake in the causes of this disease, the kind of lesion which constitutes it, and in the appropriate treatment, an acute irritation, whence results a repeated afflux of white fluids destined without doubt for exhalation, but which finding a texture too delicate, distend, disorganize these tissues, and penetrate them like an inert body. But what is the mechanism of this transformation? Does it belong to a special mode of irritation? This is probable; but its mechanism is as unknown to us as that of the organic phenomena which take place in the capillaries."

Since the publication of Dr Carswell's experiments in 1830, M. Cruveilhier has modified his opinion in so far that he has endeavoured in his last great work to reconcile if possible the two hypotheses. He allows that a certain *pulpy* ramollissement takes place in the stomach of some individuals from the action of the natural gastric juice after death, but adds that this *cadaveric pulpy ramollissement* has been confounded with the true *gelatiniform ramollissement* by all the authors who have occupied themselves with this subject. " It was so," says he, " with Dr Carswell, and equally so with all the distinguished critics who have given an account of the work I published in 1821. I am inclined to believe that few of them have ever observed at all the *gelatiniform ramollissement*." He has attempted in the 15th, 16th, and subsequent para-

graphs, to make out the diagnosis between these two kinds of ramollissement, but with very little success. The only difference he has pointed out is, that the one is generally found in the splenic end of the stomach, and the other occasionally in its anterior wall. Dr Carswell has already shown that the position of the lesion is a matter of no consequence. Any degree of difference in their transparency, as indicated by their respective names, must also be of but little use to us in distinguishing between pultaceous and gelatiniform ramollissement.

Besides the experiments on carnivorous animals, and on the transference of the gastric juice to various organs formerly alluded to, the principal other experiments which I have seen Dr Simpson perform, and in most of which I co-operated with him, are the following:—He procured the stomach of a pig, as being that of an omnivorous animal, and therefore most similar to that of man. The animal had been fed about an hour and a-half previous to death, and the stomach was found to contain a considerable quantity of chyme. Portions of this matter, the acid character of which was indicated both by the change of colour it effected on vegetable infusions, and by its smell, were introduced into different parts of the alimentary canal, such as the small intestine, cœcum, and colon, and these, along with the stomach itself, were kept in water about the temperature of 70° Fahr. for between sixty and seventy hours. Upon examination after this lapse of time, there were no signs of putrefaction. It would indeed have been very singular had there been any, when we remember that the gastric juice is one of the most antiseptic fluids known, and the period of time since the death of the animal was not great. But although no putrefaction had occurred, we generally found the substance of the portions of great and small intestine much softened, somewhat darkened in colour, and at particular places quite eroded, with numerous large perforations. The stomach itself was never found perforated, till it had been 90 or 100 hours under the action of the fluids contained in it,—a circumstance which may justly be attributed to the great thickness of the coats of this viscus in the sow. It was, however, generally observed to be much softened and discoloured in its mucous coat some time before this period. This alteration of texture was sometimes limited by a distinct abrupt line which separated the natural from the dissolved parts. This seemed to occur in cases in which there was a considerable portion of air within the stomach, distending its cavity, and thus removing the superior parts of it from contact with the contained matters. In other instances where the gaseous fluids were allowed to escape, or were not generated in any quantity, the solution of the stomach was more extended, and at its edges presented the fringed and torn appearance so generally described.

The stomachs of three dogs, which had been killed with large doses of hydrocyanic acid, about an hour or a little more after having been well fed, were subjected to a similar degree of warmth and moisture, and in the course of fifty hours were found to have undergone solution and perforation in many places.

Dr Simpson also ascertained that this same phenomenon of softening and perforation frequently takes place in the rennet, that is to say, in the stomach of the calf (which contains portions of curdled milk and gastric juice,) that has been well salted and dried in order to preserve it for coagulating milk. It is a matter of very frequent occurrence to find numerous large perforations in this substance, if it has not been kept in a perfectly dry condition.

Dr Carswell having stated (Cyclopædia of Practical Medicine) that the introduction of an alkali into the stomach under experiment, and the consequent neutralization of the gastric acid prevents the erosion that would otherwise take place, we introduced into several portions of intestine the gastric liquor, mixed with a large quantity of magnesia, and found, contrary to what the statement of Dr Carswell led us to anticipate, that as numerous and as large perforations occurred in these as in the other and adjoining portions of the same intestine submitted to a comparative trial, and containing gastric matter without the admixture of any alkali. In these cases there was also a very remarkable blackening of the intestinal texture, so as to give it the appearance of having been stained with China ink, the cause of which I am unable to conjecture, not having been able to learn what communicates a black colour to magnesia. It is consonant, however, with the experience of nurses, that, on mixing magnesia with warm water, a yellow or grayish colour is produced. Gruel is also found to become blackened on the addition of magnesia. It is right to mention, that in all our experiments, the portions of intestine were inverted and washed to clear them from any foreign substance they might contain, before the chymous matter from the stomach was introduced into them.

From these experiments, which were repeated by us on various occasions, I, for my own part, am fully convinced of the truth of an opinion I have for some time entertained, viz. that though we never find healthy gastric juice *not* containing acids, yet we must not thence infer that these are by any means the sole, or even the principal agents in effecting the solution of alimentary matters, or chymification.

In the few attempts Dr Simpson and I made upon cats and rabbits to repeat the experiments of Dr Camerer, by cutting the *par vagum* in the neck, we have as yet been unsuccessful in

procuring his results. My own opinion is, that it is impossible ever to succeed in this; but as yet we have not a sufficient number of negative facts to overthrow the assertions of this author.

Having now given an outline of the opinions of authors on the subject of this peculiar lesion, I beg to state the conclusion which I have formed from an attentive consideration of what has been written on it, as well as from the few original experiments I have detailed. I consider that the opinion of Mr Hunter has been most amply proved to be correct by Dr Carswell and others, including Dr Gairdner and M. Cruveilhier themselves,—to wit, that the gastric juice is quite capable of producing, and frequently actually does produce, solution of the coats of the stomach after death, whatever designation we may give to this appearance, as pultaceous or gelatiniform ramollissement, mollescence of the stomach, gastromalacia, &c. This has been firmly established by numerous direct experiments on animals, whether carnivorous or herbivorous, and by the observation of a sufficient number of cases in man in which this state of the stomach has been found after sudden death from external violence while in the enjoyment of perfect health, and during the process of natural digestion. The same cause, I think, has evidently operated in the other individuals in whom it occurred, who died from well-marked diseases of other organs; and we have the more reason for believing this, inasmuch as it has never been proved to have occurred where the stomach has been found empty at death, or where the examination of the body has been made a few hours merely after the termination of life; and all the authors who have taken notice of this circumstance, have particularly mentioned that the stomach contained some portion of alimentary matter or chyme. But we know that, independently of the presence of food, many irritating medicines will cause the secretion of the gastric juice; and every one knows that the readiest mode of procuring this fluid is by feeding an animal with pepper, or even with fragments of pebbles.

On the other hand, authors have failed entirely in establishing the existence of a peculiar morbid process causing perforation of the intestinal tube without ulceration; while yet no one would absolutely deny that there may exist some state of the viscus, rendering it a more easy prey to the action of the fluid it had itself formed. Again, we must remember that a more active condition of the gastric juice is by no means a proof of morbid action, for increase of power in a natural function in general only shows the higher perfection of the healthy state. Nor must we lose sight of the fact, that the peculiar train of symptoms, which we formerly enumerated, has been present in many individuals, in whom, after death, no such lesion of the stomach has been detected in any very appreciable degree.

Such, then, is the opinion I have endeavoured to support,—one which is beginning to be the received opinion in Paris, and the same I have no doubt will soon be established as true. Thus M. Louis, in 1834, says in his "Examen de l'Examen de M. Broussais rélativement à la Phthisie et l'Affection Typhöide" (p. 15,) "I will not accept the congratulations which M. Broussais has addressed to me on the subject of ramollissement with thinning of the mucous membrane of the stomach, which I do not hesitate, says he, to explain by inflammation; for I have only said that this explanation seemed to me very admissible, without having considered it as being rigorously demonstrated. More lately, I have thought I could entertain new doubts relative to the justness of this interpretation. I have said, in fact, in my Recherches sur l'Affection Typhöide (i. 183,) that it seemed to me extremely probable, that, in a certain number of subjects, the lesion in question was not inflammatory, both because we do not find any evident traces of inflammation round the part which is softened, thinned, and pale; and because in these cases, the submucous cellular tissue participates in the alteration of the mucous membrane, and, though softened and thinned like it, is not inflamed in any part,—a circumstance which is quite contrary to what happens in the violent inflammation of the mucous membrane of the colon, for example, and this it is impossible to conceive according to the hypothesis that would make this lesion to be inflammatory. I shall add, that the memoir of Dr Carswell is far from having strengthened me in the belief that the ramollissement which now occupies our consideration is the product of inflammation; that I ask for myself on the contrary, without being yet able to solve the problem rigorously, if the ramollissement of the stomach, and the perforation which is sometimes the consequence of it, may not be in fact, as this honourable and talented physician has said, the product of a chemical action in the great majority of cases."*

ART. VIII.—*History of a successful case of Lithotomy by a modification of the High Operation; which occurred in the practice of the late Mr George Bell, F. R. S. F. R. C. S. &c. &c. &c.* Communicated by GEORGE BELL, M. D. Licentiate of the Royal College of Surgeons, Edinburgh. Ext. Member of the Royal Medical Society Edinburgh.

THE anatomy of the perineum and region of the bladder is so well understood, and the principles which should guide

* To the kindness of Dr William Thomson I have been chiefly indebted for the opportunities of consulting the different Theses I have had occasion to quote in the foregoing communication.

us in our operations on this viscus, are so fully established, that any remarks on lithotomy in general are unnecessary as a preface to our subject. My object in making the following communication is to give publicity to a case of some importance, which occurred in the practice of my late father, wherein are detailed the steps of an operation, which, if adopted, I have reason to believe, will constitute the foundation of a successful practice in cases where lithotomy is called for, and the lateral operation is impracticable. The operation by the lateral method has frequently proved unsuccessful, as well from mischief committed with the knife, as from injury inflicted by a rude and incautious use of the forceps. The event, however, which the skilful surgeon has most to dread, is urinary infiltration; and because this accident is less likely to occur when the bladder is wounded through the perineum, than when it is opened above the *pubis*, he prefers the former operation, although the latter is more simple.

It occurred to my father that patients, whom the state of the prostate gland precludes from the ordinary method of relief, might be freed from misery by a modification of the high operation. He conceived that it might be practised in such a manner as to remove the probability of urinary infiltration, or extravasation of blood taking place.

He, accordingly, determined to put his plan in execution on the first convenient opportunity, and, in the year 1820, a fitting case presented, of which the following is the history as written by himself.

"Early in the year 1829, I was informed that an intimate friend of mine had had his bladder punctured above the pubis, by his medical adviser in the country. This the surgeon intended to have done through the rectum, but finding the prostate so much enlarged that the bladder could not be reached by the finger *per anum*, he was obliged to open it above the pubis. By some unfortunate movement the tube slipped out during the night, and the operation was repeated. Mr ——went on well for several months, and, although a man 80 years of age, he was still active both in mind and body. On hearing that a friend of his own had worn a tube above the *pubis*, first for six weeks, and subsequently for three years and a-half, he was soon reconciled to the same possibly happening to himself. After having worn the tube for several months, * a stone was accidentally discovered by the extremity of the instrument, at the upper part, or *fundus* of the blad-

* It was taken out, from time to time, to be cleaned, by the help of a double tube, as delineated in B. Bell's System, &c.

der. I was written for to proceed immediately to extract; but, conceiving that the size of the prostate would be a source of greater danger were the lateral operation performed, than it was warrantable to incur, I in reply said, that, if my friend wished to see me, I should come, but that I should make no attempt at extraction by the usual method,—the same reason existing against the performance of the lateral operation, as at first existed against puncturing the bladder *per anum*.

"Believing that little danger would arise from dilating the wound above the pubis, I dissuaded from *any* operation until dilatation had been fully tried. Encouraged by the proposal, my friend came to Edinburgh in the beginning of March 1829, and dilatation of the wound, with sponge tent, was commenced on the day succeeding that of his arrival in town. In less than eight days a pair of large forceps could be introduced; but, although the stone was discovered at once, still it could not be seized, for it retreated so far before the forceps that the instrument could not be opened to a sufficient extent without tearing the wound. Several attempts were made with curved and straight forceps, but ineffectually. Several days previous to these attempts at extraction being made, seeing the possibility of its becoming a question how far the opening should be enlarged with the knife, I requested my friend Dr John Thomson to join me in consultation. He witnessed my fruitless efforts at seizure, and concurred with me in opinion, that enlarging the wound would not be productive of danger. This was accordingly done with a curved bistoury, in the direction of the pubis, when a pair of large forceps were readily introduced, and two *calculi*, each weighing ten drachms, without violence or difficulty removed.

"Previous to enlarging the wound, I had repeatedly passed a large catheter *per urethram*, and drawn off a considerable quantity of urine. The opening always evinced a strong tendency to close, after the urine began to flow by the natural passage, but its entire closure was not permitted until the urethra had been restored to a more healthy condition. He continued to wear a tube for several months. The wound contracted by degrees, and although not yet entirely closed, the greater proportion of urine is passed in the natural way. I have no doubt, that by care and attention to his general health, the wound will entirely heal, and the parts be restored to their natural condition."*

* This was written at the close of the year 1829 or beginning of 1830. Mr —— died in February of this year; and, in reply to some inquiries made concerning his progress subsequent to his passing from under my father's care, I have learned, that the entire closure of the wound was never attempted, and that he enjoyed perfect freedom from pain or distress connected with this state of parts up to the day of his death.—G. B. Junior.

"This case furnishes an excellent example of how much the human body is capable of sustaining, when not assailed by the *nimia diligentia chirurgiæ*, and when protected, as in the present instance, by a good constitution and extreme equanimity of temper.

"The operation of lithotomy by the lateral method, so far as I have seen, is by no means dangerous, as regards what is done with the knife. Awkwardness in seizing the stone, violence in extracting it, and infiltration, seem to be the chief sources of danger. The two first are owing to want of skill or dexterity on the part of the surgeon; the last is dependent on other causes.

"No doubt infiltration of urine ought seldomer to succeed the lateral than the high operation, because the wound is more dependent, and the urine and blood have a more ready exit. But for the want of these advantages, the high operation would in many cases be preferred; indeed, it has, on account of the risk of infiltration, so much fallen into disuse, that, at present, I am not aware of its having been successfully performed by any operator, now alive, in Scotland.

"The above detailed case enables me to suggest a method whereby this operation may be performed with little risk to the patient's life. My proposal is, and it is my intention to follow it out as favourable opportunities occur, *First*, to inject the bladder with warm water, and puncture above the pubis, when the patient is in good health. *2dly*, To allow the tube to remain in until the adhesive process has destroyed the chance of infiltration. *3dly*, To dilate the opening gradually as far as possible. And *lastly*, if the size of the stone requires it, to enlarge the wound with the knife in the direction of the pubis in the course of the *linea alba*. Extraction may then be performed with a pair of long forceps, after which the tube should be reintroduced, and retained until the opening is disposed to close. By this method one great objection to the high operation is removed, viz. the distance between the opening in the bladder and the external wound; for by the first step in the proceeding, the bladder is made to unite with the superficial structures, and accidents, from its recession, in consequence, avoided. The patient, in fact, is brought nearly into the same condition as if the common operation of *paracentesis vesicae* were performed."

I have no doubt that one of the causes above hinted at is the extent of the incision of the prostate. The elegance and simplicity of Cheselden's operation, founded as it was upon anatomy, left little for succeeding surgeons to do regarding the manner of reaching the bladder through the perineum. Some

modifications, however, have been made, two of them of great importance.

One consists in making a freer and more depending external wound, the incision being extended to the edge of the *gluteus maximus* muscle, and in the other a limited incision of the prostate is made. This is not the place for enlarging on these topics. The first is practised by most English surgeons, and the last is adopted by many of our most dexterous and most successful lithotomists. The practice is founded on the considerations, that when death takes place as a direct consequence of lithotomy, it for the most part results from infiltration of urine; that this infiltration takes place into the fine cellular tissue situated *behind* the prostate gland; and that, if the base of the gland is left entire, such an accident cannot occur. The urine, in fact, has access to the rough surface of the peritoneum, where it leaves the rectum and sides of the pelvis to invest the bladder. If the base of the gland is left entire, the fascia which bounds the space containing this cellular tissue, inferiorly, remains uninjured, and the dangers of lithotomy are consequently diminished.

I have often seen, that the operation in which the prostate is *partially* divided is not tedious, and that the other does not seem to supply facility; that it does *not* cause serious contusion or laceration of parts, recovery in general being rapid; that it does *not* lead to a more frequent or forcible introduction of the forceps; that a large proportion of the patients so dealt with are *not* cut off by *peritonitis*. When the latter result takes place after this operation, it does not militate against the method itself, the fair supposition being, that the surgeon made an unskilful use of the forceps. Some consider dilatation of the prostate a dangerous measure; experience proves the reverse.

Experience has likewise proved that an ordinary sized stone can be readily extracted, where the gland is only partially divided; that as large a stone as it is safe to extract entire can be removed by the bi-lateral section, where the base of the gland is saved; that, by following this practice, patients are protected from the danger of infiltration: and that partial division implies neither difficulty, violence, or danger in extraction.

The importance of the above case will be readily recognized; for the successful issue of it goes far to prove that the practice is founded on correct principles. For this reason, I think it constitutes a valuable fact in the records of surgery. And I likewise believe, if the hint be followed up, that upon it will be grounded a simple and successful practice, and many sufferers rescued from misery and death.—G. B. Junior.

ART. IX.—*Account of a Case in which the Cæsarean Section had been performed four times with successful issue in the same Woman.* By EDWARD CHARLTON, M. D, President of the Royal Medical Society, Edinburgh.

IN bringing forward this communication it is not my intention to discuss the whole controversy on the Cæsarean operation, but merely to make known the most remarkable instance that has ever perhaps occurred of its repeated success on the same individual. This case may, indeed, be denominated the only one of its kind, as though in the old authors are repeated accounts of the operation having been undergone four, five, nay seven times by the same woman, not one of these cases is supported by respectable testimony, and most are given without either the names of the parties or the date of their occurrence. The facts, however, that I am now about to relate will not admit of a doubt as, in addition to part of them having been already published in a German Journal of Midwifery, (the Neue Zeitschrift für Geburtskunde edited by Busch,) I have the testimony of the operator himself, whom I saw in the month of September last. Several authentic instances have occurred in Germany during the last thirty years, where patients have been operated upon more than once; but few survived the second operation, not one the third; and the subject of this communication was the only one that survived after undergoing it three several times.

This case has been in some degree brought before the public in the German Journal already mentioned, and extracts from that journal have been given both by French and English periodicals, and in particular, in the British and Foreign Medical Review, No. iii. p. 270. The only full and perfectly satisfactory account, however, is that given by Dr Michaelis of Kiel, who performed the third operation, and whose work, a small 8vo of 300 pages, was published at Kiel in 1833.* It is entitled Essays on subjects connected with Midwifery, and contains many important facts and observations. But the most remarkable features of this case are as yet, so far as I am aware, unpublished. The woman was operated on for a fourth time this summer, and, for the fourth time, has escaped with life, has recovered her former robust health, and returned home with her child.

The particulars communicated in this paper I have selected chiefly from a privately printed account, by one of the assistants, to which I have added the remarks and details I re-

* Abhandlungen aus dem Gebiete der Geburtshülfe. Von Dr Gustav Adolf Michaelis. Kiel, 1833.

ceived from the operator himself. The patient I had not the pleasure of seeing, as she returned to her husband in Holstein about three weeks before I arrived at Kiel. The account in Busch's Journal is short, though perfectly accurate in the details, as they are probably contributed by Michaelis himself, or extracted from his work mentioned above. The observations of Dr Michaelis are, however, not there noticed, and the fourth operation had not then been performed.

Anna Margaretha Adametz was born in the year 1795, at Wilster, in Holstein, is married, and now living at St Margarets, a village on the Elbe. She was the second child of healthy parents, and both she and her brother enjoyed good health in their infancy, but she subsequently suffered long and severely from *rachitis*, until her twelfth year, after which she became comparatively robust, and has since enjoyed excellent health. The lower extremities, the pelvis and the spine, are much distorted. The height of the whole body is but 4 feet Paris measure, (4 feet 3 inches English.) The distance in a straight line from the vertex to the acromion is eight inches, from the acromion to the crest of the ilium 18 inches, from here to the external condyle of the femur 11 inches, and from thence to the sole of the foot also 11 inches. The trunk is therefore disproportionately long. On examination *per vaginam* the antero-posterior diameter from the lower edge of the *symphysis pubis* to the promontory is about 2½ inches, from the upper edge of the *symphysis pubis* to the promontory it is about two inches: the sacrum is nearly straight. The external organs of generation are perfectly natural, except that the perineum is exceedingly narrow.

Nothing remarkable occurred during the first pregnancy, and at the end of forty weeks the first pains came on, on the 16th June 1826. The *os uteri* underwent dilatation in the normal manner, and the head of the child lay in so favourable a position, that the accoucheur still hoped, in spite of the deformity of the pelvis, to be able to bring the child through the natural passages, and resolved at all events to desist till the morning. During the night, however, the water came away, and the *os uteri* was dilated to three or four finger-breadths, but the head could not enter the pelvis. Another physician was sent for, who came about midday on the 17th, and having attempted to effect a delivery by turning and by the forceps, sent for his colleague Dr Zwanck of Eddelack. He came at five P. M. and having proposed the Cæsarean operation in preference to the dismemberment of the child, which appeared still alive, it was cheerfully consented to by the patient, and fixed for the following morning, as the necessary preparations could not till

then be completed. In the meantime twelve leeches were applied to the lower part of the abdomen, and some nitre emulsion given to allay a feverish attack.

First Operation.—On the morning of the 18th of June the patient, after her bowels and bladder had been properly emptied, was placed on a table in a nearly horizontal position on account of the abdomen being very pendulous. Her hands and feet were tied down with towels, and Dr Seidel applied a napkin dipped in oil around the spot selected for the incision; and pressed the uterus, which was very much inclined, to one side, into the median line of the body, where he held it firm. It being difficult to form a fold of integument on account of the tense state of the *parietes* of the abdomen, Dr Zwanck made a free incision two inches below the *umbilicus* in the *linea alba*, and continued it down to two inches above the *symphysis pubis*.

As the tension of the abdominal *parietes* was still so great as to prevent the introduction of the fingers, the peritoneum was divided by passing a director beneath, and cutting it with a blunt-pointed bistoury. The length of the incision was about five inches. As soon as this was effected Dr Seidel pressed back some convolutions of intestines that protruded, so quickly that they produced little or no interruption to the operation. The hemorrhage was very slight. The *uterus* was then divided by repeated slices, but the wound was too small for the extraction of the child, the nape of whose neck presented. Both the internal and external wounds were therefore enlarged with the blunt-pointed bistoury, so that the incision on the inside of the *uterus* was nearly two inches longer than that on the external surface of that organ. As soon as the head of the infant could be extracted, the rest of the body followed immediately, and the *uterus* contracting strongly, the placenta followed directly after. A considerable hemorrhage now ensued from the edges of the divided *uterus*, cold water was poured upon it from a height, and the hemorrhage ceased. The child, which weighed 7 lbs. Hamburgh weight, appeared to have been dead some time. Ten minutes after the operation the lips of the wound were in such exact contact that the suture was deemed unnecessary, and strips of adhesive plaster with charpie and a common bandage completed the dressing. The strips of plaster were sixteen inches long, small in the middle, and broader towards both ends, and answered their purpose most effectually. The patient, who had been perfectly quiet during the whole of the operation, was then placed in bed upon her back.

A cooling drink of gruel and citron was given, with a mixture containing two drachms of nitre, one ounce of olive oil,

one ounce of poppy syrup, and six ounces of decoction of marsh mallows, and at night she took a grain of acetate of morphia. Pulse 120, small and hard; night passed tranquilly; slept well; slight perspiration; much thirst.

19th, Pulse 105; pain in the region of the pubis. Urine twice drawn off with the catheter; patient got once half a grain of acetate of morphia.

20th June, Urine passed without the catheter; feverish during the night. Bowels not being open, she took every hour a tablespoonful of a mixture, consisting of one ounce of syrup of rhubarb, and an ounce of almond oil in decoction of mallows.

21st. The bowels had been moved seven times; with abatement of pain in abdomen. Half a grain of acetate of morphium was given several times daily, until the 29th. She took in all one scruple.

On the 23d, when the dressings were removed, the wound had united to the extent of three inches, the edges of the lower portion were not united, and were again brought together by fresh strips of adhesive plaster.

26th, She felt well, with good appetite; took decoction of bark with camphor, and had some broth.

The only inconvenience of which the patient complained, and which continued to annoy her till the end of the month, was scalding in passing water, which frequently produced retention of urine, requiring the employment of the catheter. An enema was administered almost daily to procure the necessary relief of the bowels. The lochia were regularly secreted; the milk was sparing.

A moderate quantity of purulent matter flowed from the lower corner of the wound, which was completely healed and cicatrized in three weeks. The cicatrix was about the breadth of a finger, and she was obliged constantly to wear a binder, on account of the pendulous state of the abdomen. The menses returned eight weeks after the operation. The patient recovered much sooner from this first operation than from any of the subsequent ones. Dr Zwanck considered that much of the success of the case was owing to the uninterrupted sleep enjoyed by the patient, as well as to the free use of morphia, and to the non-employment of sutures, without which he perfectly succeeded in maintaining the *parietes* of the wound in contact. Much may also be ascribed to the calm and unalterable spirit of the patient.

Second Pregnancy.—I have been more particular in my account of the first operation performed on the woman Adamets, that the reader may form a perfectly clear idea of the case. Of the second and third operations I shall, therefore, merely

notice the most remarkable facts, and then proceed to the account of the fourth performance of the Cæsarean operation upon this woman.

She menstruated for the last time on the 13th April 1829, and quickened towards the end of August. During her pregnancy she suffered slightly from a pendulous belly. On admission into the lying-in hospital, at Kiel, in December 1829, external examination showed the belly extremely pendulous, and with the uterus hanging quite over the pubis. This was evidently produced by actual dilatation of the uterus, and distension of the abdominal parietes in the immediate vicinity. The cicatrix of the former wound was immensely dilated, extremely thin, and forming a kind of sac. The cicatrix itself was now 9 inches long and above 4 in breadth. The space between the umbilicus and the pubis now measured 14 inches, whereas at the first confinement it measured only 8.

The details of the operation, which was performed on the 21st January 1830, by Wiedemann of Kiel, are too long for the limits of this communication; but this is not to be regretted, as an analysis of them is given in the British and Foreign Medical Review, No. iii. page 282. I need then only refer to this account, and remark, that though the child was born alive, and was affected with very remarkable convulsions on its sudden entrance into life, it died on the 16th of February, of induration of the cellular tissue, a disease so rare in that part of the country, that Dr Michaelis has met with but three cases in his extensive practice. The sutures were inserted this time with Graefe's large needle, of which the patient complained loudly, and which really seemed to me to have been unnecessary and severe. Her recovery was pretty favourable, though, upon careful examination, there was discovered in the lower part of the wound a small fistulous opening, through which a probe was passed right up into the uterus.

Third Pregnancy and operation.—She menstruated for the last time in the middle of June 1831, and was again admitted into the hospital at Kiel in the beginning of March 1832. Pains came on on the 28th March, and the operation was performed on the same day, by Dr Michaelis. For the account of it I refer to the work above quoted, and pass directly to the fourth operation, wherein Dr Michaelis was also the operator.

Fourth Pregnancy and operation.—The woman Adametz became pregnant for the fourth time, and was admitted into the general lying-in hospital at Kiel, in the beginning of April 1836. Her abdomen was pendulous, as on the preceding pregnancies, and so distended, that, for several weeks before parturition, she was affected with pains exactly resembling la-

bour-pains. These pains, however, did not dilate the *os uteri*, the aperture of which was so small that it seemed rather like a perforation made with some sharp-pointed instrument. Her pregnancy passed over without any unfavourable symptoms, except that, towards the end of it, she was affected with a severe cough, which was then prevalent in the country. This, however, ceased before the labour-pains came on, which was on the 24th of June 1836. By these the *os uteri* was soon dilated to such an extent that the membranes could be felt protruding in the vagina. After this the pains became much less strong, nor had they dilated the *os uteri* any more on the 26th at 2 P. M. But from this time the pains became so urgent, that by 10 P. M. two fingers could be introduced into the *os uteri*. The waters came away on the following night at half-past one, and were followed by a prolapsus of the cord, the veins of which were greatly swelled, and its pulsations, which at first were very frequent, gradually became slower and less strong. Every thing having been long previously prepared for the operation, it was performed on the 27th of June by Dr Michaelis. The bowels having been emptied by an enema, and the urine drawn off with the catheter, the patient was placed on a table covered with a mattress, and merely held by the assistants, who were disposed in the same manner as in the previous operations.

The incision was made on the left side of the abdomen, and thence extended five inches towards the median line, passing through the cicatrix of the third operation, as the uterus here seemed to be most closely adherent to the parietes of the abdomen. Two strokes of the scalpel divided the abdominal parietes with the peritoneum, and the uterus was then cut through by repeated slices. The wound in the uterus was then enlarged with the blunt-ended bistoury, to the same extent as that in the parietes of the abdomen. A remarkable appearance now presented itself. The uterus every where adhered completely to the parietes of the abdomen, so that the cavity of the abdomen was not opened at all, nor was a single convolution of intestine visible during the whole operation. The placenta now appeared in the middle of the wound, and being pushed aside, the operator inserted his hand into the cavity of the uterus, and seizing the left foot of the child, extracted first that limb and then the other. The trunk and upper extremities easily followed, but the head was retained for some time by the contraction of the uterus. The child, a girl, was affected with the same spasms as were noticed in the second instance, but they soon disappeared on applying cold water to the chest. The placenta followed soon after, and came away easily, but the membranes were with difficulty separated from the right

side of the uterus. The wound, which was now diminished to three inches and a half in length, was united by means of three sutures, and the intervening spaces were held together by long strips of adhesive plaster, passed under the body and crossed in front. An aperture, however, was left at the inferior part of the wound, into which a piece of lint was inserted to permit of a free discharge. The whole wound was then covered with lint, and the abdomen secured by a binder fitted close to the body. The patient, who had scarcely complained during the whole operation, having taken ten drops of laudanum, was carefully placed in bed by the operator himself. The following short report of her recovery is extracted from the books of the hospital.

27th June. After-pains came on directly after the operation, and in order to procure sleep for the patient, she took five drops of laudanum and tincture of cinnamon. Pulse 110; urine twice passed naturally; tongue moist and clean; great thirst, and slight inclination to vomit; skin moist and warm; great redness of the face; complains of headach, but is otherwise in excellent spirits. During the night between the 27th and 28th the pains of the abdomen increased to such a degree as entirely to prevent sleep, and the belly was at the same time extremely painful and tender on pressure. In consequence of this, the bands of adhesive plaster were cut through, as they compressed the abdomen, which, in addition to a few drops of tincture of opium, greatly mitigated the pains. The pulse was 150, small and weak; great thirst, and cold perspiration.

28th, On the whole, the patient feels very well; the lochial discharge flows freely; but the bowels are slow, she has had no passage from enema, on account of which an oleaginous mixture was given to her, to which was added the sulphate of potash.

29th, The pains of the belly had continued during the night, though the patient took a considerable quantity of tincture of opium, and during the day became much more intense than is usual among puerperal females. The pulse was 140, hard and small; the face pale; the bowels costive, and the patient had frequent retching. As these symptoms indicated incipient inflammation, twelve leeches were applied to the epigastrium, and the patient took two grains of calomel every hour.

30th, Under the use of these remedies the inflammatory symptoms disappeared, but she still complained of colicky pains in the right hypochondrium, and as she had had eleven copious and feculent stools since the operation, she took twelve drops of tincture of opium.

July 1st, Pain of abdomen still complained of; six stools. Continue the opium.

"With regard to the state of the wound, the sutures have

been cut away, as the upper part has already united, but the skin in the lower part having been cut by the sutures it still remains open. The wound of the parietes does not correspond with that of the uterus, as they are drawn towards the left side.

"July 2d, As the pain of right hypochondrium continued to increase, three leeches were applied to the part, and afterwards a blister, by which they were considerably mitigated. During the following days the strength of the patient gradually decreased from incessant diarrhœa, which was, however, at length put a stop to, though with considerable difficulty, by opiate enemata. Nutritious diet was given her without fear of inflammation, and the patient so rapidly recovered, that, by the end of July, she was almost completely restored to health. A fistulous opening, however, remained, as on the former occasions, which was not healed when she left the hospital with her fine healthy child on the 25th of August last."

I shall now proceed to make some remarks upon the most remarkable features of these four operations, and point out a few of the changes that were then observed. In the first operation delivery by the forceps and by turning was previously tried without success. In this country, of course, the next remedy would have been embryotomy; but on the continent, where the life of the child is in some degree attended to, as well as that of the mother, it is oftener thought advisable to have recourse to the Cæsarean operation. The child in this case was probably alive at the period the operation was determined on, and the mother giving her free consent to it, the medical men attending her had no hesitation in resorting to the Cæsarean section. Besides, in this case, when the utmost diameter of the pelvis was only two inches, the bringing down the child piece-meal would have been extremely difficult, and probably rather hazardous to the mother. The child, however, upon extraction, proved to be dead, and life appeared to have been some time extinct. As in this case, however, they had had the full consent of the parent, and acted under the idea that the child was still living, they were, in my opinion, perfectly justified in performing the operation. The incision was this time made in the *linea alba*, and the operation was performed a much longer time after the commencement of the labour-pains than in the ensuing pregnancies.

Refraining from the employment of sutures, to which Dr Zwanck in a great measure ascribed the extreme rapidity of her recovery, is an important circumstance in the case. I do not deny that the huge sutures of Graefe would be painful and irritating enough; nor is his assertion, that the lips of the wound in the parietes of the abdomen possess little or no sensibility, at all borne out by facts. In most

cases, nevertheless, smaller sutures and needles have been employed, though some have completely succeeded without any sutures at all. Thus Dr Sommer at Riga, 1810, in the second operation on the same woman, used no sutures, but only strips of adhesive plaster. In this case the uterus seemed to have burst during pregnancy in the scar of the former operation, and the child lay dead in the cavity of the abdomen.—Vide Russische Sammlung fur Naturwissenschaft. und Heilkunst von Crichton, i. B. i. H. No. 29.

Lorinser operated at Nimes, in Bohemia, on the woman Gröger in the year 1802 and again in 1805, and the second time, like the case above, was merely a case of gastrotomy, as the uterus had burst in the scar of the former wound. In both these cases no sutures were employed, and the wound healed well, although retarded in the first case by enormous collections of pus in the cellular membrane surrounding the external wound. On both these occasions also, the patient was afflicted with intense vomiting, yet the lips of the incision remained in perfect contact. Lorinser was of opinion that, had sutures, and especially the Graefian sutures, been employed, he could hardly have saved the patient's life, from the severe irritation they always occasion.—Vide Siebold's Jour. B. iii. st. 1, 1819, p. 106—122. In general, however, sutures are requisite; and it is doubtful whether an attempt to close the wound by suture, and to heal it by the first intention, would not have been crowned with success, and have hindered the purulent effusions that ensued.

In noticing the second pregnancy, I remarked the dilatation of the cicatrix of the former wound. At the commencement of labour, however, the uterus and abdominal parietes contracted into a much more normal form, from whence Dr Michaelis concluded that the extension of the uterus was not idiopathic, (if I may be allowed so to render his expression), but arose from the want of sufficient support from the yielding parietes of the abdomen, otherwise, as he very justly observed, so strong a contraction could hardly have taken place at the time of labour. The incision was made in the old cicatrix, a little to the left of the median line. The uterus was extremely thick, but the abdominal parietes were not more than a quarter of an inch in thickness.

In the third operation, the uterus already appeared to be partially united to the parietes of the abdomen, and in the fourth operation it was entirely so. During the third operation no intestines were seen until the close of the operation, when a very small portion of omentum protruded, but was instantly returned. Many cases are recorded by continental writers of such an occurrence, which of course must add greatly to the chances of success in the operation. Thus, in the third operation on

the woman Mautz, at Basle in 1805, the uterus was firmly connected to the parietes of the abdomen. Osiander, Handbuch der Entbindungskunst, B. 2. A. page 376. Merrem (Gemeins Zeitschrift für Geburt, B. III page 338,) thinks that in such cases, should the woman ever again become pregnant, the case could be brought to a successful issue, as in the latter month of pregnancy the uterus would be torn off from the very slightly elastic parietes, and the former wound be thus reopened.

This would certainly be dangerous enough; and Merrem has formed his ideas of the non-elasticity of the abdomen from his own case, where he operated for the second time, on a patient named Viandes, on the 8th of May 1826. But in this case the parietes had become almost cartilaginous, from whence he hastily concludes, that such is probably the case in most pregnancies subsequent to the Cæsarean operation. That such, however, is by no means the fact, is sufficiently proved by the fourth pregnancy of the woman Adametz, and by others, such as the case of Locher at Zurich in 1817, of Burckhards at Basle, and of Le Maistre at Aix, &c. &c.

Were such cartilaginous cicatrices more common, I fear it would greatly diminish the number of successful pregnancies, after once undergoing the Cæsarean section. In these cases the uterus is prevented from again subsiding into the pelvis, but remains attached to the abdominal parietes. In the third operation also the incision was made, not in the *linea alba*, as recommended by most of the best authorities, but in an oblique direction, from left to right, according to the method proposed by the elder Stein. Dr Michaelis, however, said that this was the only case in which it had succeeded, though it had previously been performed seven different times. This time it was done, because the body of the infant projected in a most marked degree in that direction.

I regret much that the length to which this communication has already extended prevents me from entering, as I should wish, into the consideration of the controversies that have taken place regarding this operation. Some have maintained that the Cæsarean section should be blotted out from the records of surgery, as an opprobrium to the science. Others, on the contrary, have upheld it as one of the greatest triumph of the obstetric art. The former opinion has principally been held in Great Britain; the latter on the continent of Europe and in America. But there these extreme views are espoused only by the ardent partizans of either side. More moderate men, willing to listen to the dictates of reason and experience, have agreed that it may be occasionally performed with every prospect of success.

In drawing to a conclusion, however, I may be permitted to offer a few remarks upon the still existing differences of opinion on the Cæsarean section between English and continental surgeons.

In this country the operation has been singularly unsuccessful. But a single case of the Cæsarean operation has been recorded in which the mother was saved, though it has been the means of rescuing from destruction no less than thirteen children, up to the time that Dr Merriman wrote in 1826. Since that time it has been performed by Mr Crichton of Dundee, on a poor woman, whose pelvis had been dreadfully crushed some years before in a thrashing-machine. The mother died eight hours after, and the child recovered, and, in 1828, was in excellent health. Dr M'Kibbin of Belfast, performed it on the 27th September 1829, but without success. The deaths in both these cases were plainly attributable to the delay of the operation. I am not surprised, indeed, at this mortality. When I perceive in looking over the tables of the Cæsarean sections in Britain, given by Dr Hull, that many, nay most of the patients had been in labour six days, and some even ten and twelve, my only subject of wonder is, that any of the children should have survived. So much time appears in general to have been lost in disputing about the diameters of the pelvis, and through the reluctance the surgeons feel to relinquish their favourite *embryulcia*, that the patient's strength and spirits are exhausted, and she is already in a dying state ere the operation be determined upon. But on the continent the case is very different. Here, in the first instance, and I have no doubt that this has no small influence upon the surgeons, the brilliant train of successful Cæsarean sections is before them, the operation is settled upon at an early period of the labour, before the poor patient has sunk under the fruitless efforts of parturition. Doubts may arise in their minds, as well as in those of British practitioners, as to the exact diameter of the pelvis; but with them this causes little or no delay. If delivery by the forceps or turning be impracticable, and the child have been ascertained by the stethoscope to be still alive, they then no longer hesitate to perform the Cæsarean section. And the result has justified their practice, though to British practitioners in general, to whom the life of the child appears of very inferior moment, the results may not appear so splendid as to others.

Dr Osborne has laid down the rule, that embryotomy may always be performed when the pelvis has a diameter of one inch and a-half, and adduces the case of Elizabeth Sherwood in support of his assertion. His accounts, however, of the measurement of the pelvis are most unsatisfactory, and at any rate he himself allows that the pelvis in this case was an inch and three

quarters. Any person who has read the horrible details of this operation will, I think, agree with me in preferring the Cæsarean section. But Elizabeth Sherwood, wonderful to say, survived, became pregnant again, and expired under a repetition of the same treatment.

In conclusion, I give the aggregate of the Cæsarean operations which have been performed on the continent since the year 1800.

The number of Cæsarean sections from 1800 to 1838 is 110; successful for the mother, 48; unsuccessful, 62. Of the children 67 were born alive, 29 were dead on opening the uterus; and this was no doubt to be attributed to the delay of the operation, as the history of these cases evidently proves. Since 1838, it has been several times performed on the continent, and in the last number of the British and Foreign Medical Review is the history of a case, successful both for mother and child, performed by Dr Meyer of Minden. Other cases, both successful and unsuccessful, have been recorded in various journals, principally in the German; but as these are not to be met with in Edinburgh, I can only mention them from hearsay.

ART. X.—*Observations on a mistake in M. Devergie's marks of death by submersion, with an additional Case.* By FRANCIS OGSTON, M. D. Aberdeen. In a letter to the Editor of the Edinburgh Medical and Surgical Journal.

SIR,

IN the paper on drowning, published in the last number of the Edinburgh Medical and Surgical Journal, I find that I have been unwittingly betrayed into an error of some consequence, which I am anxious to be allowed to correct at the earliest opportunity. Not having had access at the time to the writings of M. Devergie in the *Annales d'Hygiene*, in alluding to his views regarding the progress of putrefaction in water, I was under the necessity of trusting to the abstract of them by Dr Beatty, in the third volume of the Cyclopædia of Practical Medicine. M. Devergie's new work, his *Medecine Legale*, having since reached me, I perceive that M. Devergie limits the application of the rules to which I adverted to bodies removed from the water during the winter season, a limitation which seriously affects the matter in dispute. No intimation of this restriction, however, is noticed by Dr Beatty, an omission which is unfortunate, occurring as it does in a work of such extensive circulation as the Cyclopædia of Medicine; and the more so, as the error will be extensively propagated from the circumstance of Dr Beck's having copied Dr Beatty's abstract into the new edition (the fifth) of his Medical Jurisprudence.

It is almost unnecessary to add, that as cases 5, 7, 9, and 17, in my paper, were examined in summer or autumn, they can no longer be considered as invalidating M. Devergie's test. But while I cheerfully concede this much, I would by no means be understood to give in my adherence to the correctness of M. Devergie's views. To his doctrine, that the seasons being alike, the progress of putrefaction under water is so uniform as to afford the means of determining the time that has elapsed since the death of the individual, the *a priori* objections appear so strong, that farther proof than has yet been offered must be adduced to prove it. The cases offered in your last Number, even after the deductions which I have made, are sufficient to cast discredit on it. Not, however, to occupy your valuable columns needlessly, by going over the same ground again, I shall content myself with noting the outlines of a case of drowning, which I have examined since I was in possession of M. Devergie's matured opinions, and which I trust will be a sufficient apology for my continued scepticism. It will be seen from that case that, amongst other discrepancies, the following are sufficiently striking. At two months M. Devergie states that the hairs begin to be detached, and can be easily removed by pulling, and that between the third and fourth month saponification commences. In the subjoined case both circumstances were observed, though the body had only been twenty-seven days in the water. The English words in Italics indicate other points of disagreement.

Case XVIII.—December 29, 1836. Alexander Cruickshank, aged 23, twenty-seven days immersion, seen one hour after removal from the water.

External appearances of the skin and surface.

The head, face, and clothes were covered with a thick layer of soft mud; the face was enormously swollen. Both surfaces of the hands were sodden and wrinkled to above the wrists. *The face was of a deep red colour*, except on the centre of the forehead, both eyelids (which were much tumefied,) nose, prominence of the cheeks, and lower lip. Dark fluid blood was found within the eyelids. The cornea was opaque. *Hair detaching from the scalp, and coming away with moderate traction.* The tip of the tongue was in contact with the incisor teeth. The neck was much tumefied, with broad blue lines running down each side, nearly in the situation of the external jugular veins. Broad green patches were observed on the upper and fore part of the chest, *on its sides and on different parts of the abdomen.* The penis was swollen and red, and *the cuticle had begun to separate. The scrotum was natural.* The back part of the trunk was uniformly green. *Cutis anserina* on the left lower extremity, on the opposite thigh, and on the belly. The cuticle was

beginning to separate from the lower half of the legs. The feet were sodden and wrinkled as far as the ankles. The nails continued firmly attached; those of the feet were livid. The shoulders and fore-arms were *greenish*; the *cuticle detaching* from the latter. The lower jaw was fixed; the other joints were flaccid. Fluid blood was found between the lips and teeth; the face, neck, and upper part of the chest were œdematous, and the cellular substance infiltrated with a thin reddish fluid.

Appearances and state of the Internal Organs.

The *dura mater* was reddish. Two drachms of thin red fluid were found at the base of the skull. The surface of the brain was of a deep red-colour. The convolutions were flattened. The cortical substance of the brain was *of a deeper ash-colour* than usual; the cerebral mass was somewhat softened generally. The *cerebellum*, *thalami*, *fornix*, and *corpora quadrigemina* were almost in a pulpy state. The cranium was thin.

The mouth and pharynx were nearly filled with a thick, opaque, and reddish semifluid mass. A little thin reddish fluid was contained in the *larynx*, *trachea*, and *bronchi*. A number of minute air bubbles were observed in the *larynx* and upper part of the *trachea*; and a greater number of larger size at the bottom of the *trachea*, and commencement of the *bronchi*.

The cavities of the chest contained a little thin reddish fluid. The whole of the lung, the left, and lower lobes of the right lung adhered to the ribs. The lungs were violet-hued, emphysematous, distended and moderately congested. A minute quantity of reddish frothy fluid was contained in the air-cells; the lungs were easily lacerated. The lining membrane of the trachea, and the surface of the pleura were of a dark red-colour.

The surface of the heart was red, even where covered with fat. The right ventricle, pulmonary artery, both *venæ cavæ*, and right auricle were full of dark fluid blood, which was also found in the aorta. The left auricle and ventricle were merely moistened with blood. The lining membrane of the heart was of a dark red-colour.

The cellular substance of the extremities, abdomen, and lower part of the chest were saponified. The whole peritoneal surface was of a uniform dirty red-colour, as was the mucous coat of the whole alimentary canal. Two ounces of a reddish pulp were found in the stomach. The liver, spleen, and kidneys were moderately congested. Two ounces of milky urine were contained in the bladder.

The muscles generally were dark-red, scarcely if at all softened. The diaphragm was arched upwards.

Aberdeen, 25th February 1837.

PART II.

CRITICAL ANALYSIS.

ART. I.—*Mémoires de l'Academie Royale de Medecine*, Tome i. 4to. Paris, 1828, Tome ii. 4to, Paris, 1833.

AT the French Revolution, the Royal Academy of Surgery, and the Royal Society of Medicine ceased to exist; and their places were, to a certain degree, supplied by the Societé Medicale d'Emulation and various professional journals. On the restoration of the Bourbons, no immediate steps appear to have been taken to re-establish the original institutions; but at length, on the 20th of December 1820, a charter received the Royal signature, establishing a Royal Academy of Medicine, which should possess the papers, and carry on the labours which attached to the two extinct bodies, and be entrusted with applications from the government on all matters respecting public health.

The inaugural meeting was held on the 6th of May 1824, when an address was delivered by the Secretary General, M. Pariset; and the first volume of memoirs was published four years subsequently, namely in 1828. Since that period, four volumes more have come forth, making five in all; and we hope to be able in this, and one or two of our subsequent numbers, to introduce the most material parts of their contents to the notice of our readers. It may be satisfactory to them, however, to have a little previous information relative to the formation and constitution of the Society.

By the original charter, the academy was divided into three sections; *Medicine*, *Surgery*, and *Pharmacy*, and comprised four descriptions of members, *Honorary*, *Titular*, *Associated*, and *Adjoints*.

The Honorary members were to consist of 30 in medicine, 20 in Surgery, and 10 in Pharmacy: The *Titular* of 45 in medicine, of whom five were to be chosen from veterinary practitioners, 25 in surgery, and 15 in pharmacy.

The associates were to belong to no particular section, but to consist of three divisions, namely, the *associés libres*, *associés ordinaires*, and *associés étrangers*. The *associés libres* were to be 30 in number; were to live in Paris; and were to be chosen from persons who had successfully cultivated sciences accessory to medicine, or contributed in any way to their advancement; or who had served with zeal and distinction in any of the charitable institutions.

The *associates in ordinary* were to consist of 80, of whom 20 were to reside in Paris. They were to be chosen from such physicians, surgeons, and apothecaries as were either known by their writings, or as teachers, or by their success in practice. The *foreign associates* were limited to 30, and were to be elected from the most distinguished physicians, surgeons, or apothecaries of foreign countries.

The *adjuncts* were to consist of *resident* members, who were to live in Paris, and to be equal in number to the titular of the class to which they belonged; and of *non-resident*, who were to be unlimited. Both divisions were to be chosen from physicians, surgeons, officers of health, and apothecaries, giving a preference to such as had contributed memoirs to the academy, or had otherwise endeavoured most to promote its interests.

Each of the three sections were to elect their respective honorary, titular, and adjunct members; but the associates were to be appointed by the whole academy. It was necessary, however, for the honorary, titular, and associates to have the sanction of his Majesty; while the adjuncts required the confirmation of the academy at large. But it was stipulated that the honoraires were to be elected from the titulars of their particular class, with this provision, that, in addition to the regular members, every titular who should have attained the age of sixty, should have a right to become an honoraire, on making the demand in writing.

The titulars were alone to have the right of election, and the conduct of the general affairs of the academy.

The general body were to meet once in three months, the sections once a fortnight; but a public meeting was to be held once a year by each section, at which an account of its labours in the preceding year was to be given, eulogiums to be read, subjects for prizes proposed, and the names of successful competitors announced.

The King's first physician was to be the honorary president of the society, but a temporary president (president temporaire,) a secretary, and a treasurer, were to be chosen from any of the sections of the academy by the titulars; the first two for one year, the last for five. Each section, through its titulars, were

to choose annually a president, vice-president, and secretary; but perpetual secretaries might be nominated, with the approbation of his Majesty, for each section.

The academy was directed to have a council of administration for its general affairs, composed of the honorary president, the temporary president, and treasurer, the president, and treasurer, the presidents and secretaries of the three sections, together with the Dean of the Faculty of Physic of Paris, who was an ex-officio member of the academy. The council was to meet once a week, and to divide between the sections, the business which was to occupy them, and was to have the power of continuing general or sectional meetings at its pleasure.

The academy was empowered to form general regulations for the management of its affairs, which were not, however, to be binding till they received the sanction of his Majesty, through the Minister of the Interior. A part of the honorary, titular, and associate members were to be nominated by his Majesty in the first instance. The means for defraying the expences were to be determined on hereafter; and it appears from the regulations entered into for managing the various details of this establishment, that the expences were defrayed by the Government. The titular members who might be present at general meetings of the academy, before a certain hour, and for a certain period, were to have each a comitie delivered as the representative of a certain honorarium, to which it would appear that they were to be entitled for their attendance.

By the second volume of the society's memoirs, which did not appear till the year 1833, we are informed, that some important changes have taken place, in the complicated structure of which we have endeavoured to give our readers a general idea. In the year 1829, in consequence, we presume, of a wish expressed by the academy on the subject, his Majesty, on the recommendation of the Minister of the Interior, issued an ordinance, which enacted that the three sections of the academy should cease to exist; that the meetings should in future all of them be general ones, formed of the body at large; that the class of honorary and resident associate members should be done away; and that the non-resident adjuncts should have the name of *corresponding* members.

The number of the whole members of the academy was limited to 160, of which were to be 60 titulars; 40 adjuncts; 40 non-resident associates; 20 foreign, and 10 free associates; and till the members were reduced to that number, one nomination only was directed to take place for every three vacancies.

Instead of the three original classes of the first division of the academy, the new constitution created eleven classes or sections,

among which the titulars and adjuncts were to be divided in certain definite proportions.

These sections are, *Anatomy and Physiology; Medical Pathology; Surgical Pathology; Therapeutics, and Medical Natural History; Operative Medicine; Pathological Anatomy; Midwifery; Public Health, Legal Medicine and Medical Police; Veterinary Medicine; Medical Physics and Chemistry; Pharmacy.*

The titulars and adjuncts were directed to be appointed by the titulars, from a list presented by the respective sections in which vacancies occur; the non-resident, associate, and corresponding members were to be elected by the society at large. But the titulars as before require the confirmation of his Majesty.

The inaugural address, to which we have already alluded, is followed by an eulogium on five deceased members, *Corvisart*, *Gassicourt*, *Berthollet*, *Pinel*, and *Bourru*. Of these we can afford a very short notice only.

Corvisart was born in the year 1755, and died in 1821. He was intended for his father's profession, the law; but he disliked its studies, and became accidentally attached to medicine, in which he soon became much respected, by the discrimination of the able men under whom he studied. He became a joint lecturer in anatomy in Petit's foundation at Paris, but though so much distinguished and respected, he was often in a state of complete destitution, his expenses not exceeding 100 crowns per annum, part of which he was sometimes obliged to borrow. In this painful state of things he longed to be appointed to an hospital; and an opportunity occurred of being connected with a private establishment of this kind. The lady, however, by whose liberality it was formed, and whose patronage was necessary for the appointment, would not nominate him unless he would agree to wear a peruke; but he disliked this embellishment so much, (though one would have imagined that it was not much abhorrent to the feelings of a French physician fifty or sixty years ago,) that the negociation failed. His disappointment was soon, however, compensated by his being introduced into a connection with the Clinical School of the Charité. In 1788, he became physician to this establishment, and in 1795, at the formation of the School of Medicine, was appointed to the clinical chair. He was soon nominated physician to Buonaparte, and at the establishment of the Legion of Honour, in 1803, became a commander, and afterwards a baron. His work on diseases of the heart was published in 1806; in 1811, he was admitted into the Institute; and in 1820 was nominated an ho-

norary member of the section of medicine in the Royal Society of Medicine.

M. de Gassicourt was born in 1769, and was educated for the bar. He became a *pharmacien* at the demise of his father (who was of that profession) in 1800; and in 1803 published a Dictionary of Chemistry, which was creditable to him. He accompanied Napoleon as *pharmacien ordinaire* in some of his campsigns, who made him a chevalier, and he had the grand cross of the Legion of Honour conferred upon him by the Bourbons in 1815. In 1821 he was made secretary of the section of pharmacy, and died the same year. An amusing anecdote is mentioned of Buffon in this article. Gassicourt, when a very young man, had obtained the notice of Buffon by his taste for natural history, and was invited with his father to a *petit dejeuner* at the philosopher's residence. They waited some time, and at last Buffon made his appearance, sumptuously attired, preceded by a *valet de chambre*, and followed by two secretaries, who took their places at different tables. Buffon apologized for his delay, and seated himself between the table where his guests were, and a bureau, where he went on with a letter which he had begun. "Amid his writing, conversation, and sipping his chocolate, he kept his two secretaries in occupation, dictating to one the description of a rare and new animal, and to the other, general considerations on mineralogy; thus passing from composition to familiar conversation, and from familiar conversation to composition, with a presence of mind, a freedom of thought, a connection, choice, and propriety of expression, which (according to the benevolent opinion of the biographer of Gassicourt,) could hardly admit of its being imagined that this little scene was prepared." No one is a hero with his *valet de chambre*, it has been said; but how did the philosopher get off with his secretaries, in respect to the grandeur and sublimity of this exhibition? Gassicourt was somewhat of an infidel, it would appear, in the business.

Berthollet, the celebrated chemist, was born in 1748, and died in 1822. He was a member of the academy and Institute, was an associate of the Royal Academy of Medicine; and he received from Napoleon the rank of Count, and of grand officer of the Legion of Honour, and was likewise made grand cross of the order de la Neumon, and titular of the senate of Montpellier.

Pinel was born in 1745, and died in 1826. He was a member of the Legion of Honour, and of the Institute, and had a grand cordon of the order of Michael conferred upon him in 1818. In 1798, he wrote his Nosographie Medicale Philosophique; in 1801 his treatise on Alienation of Mind; and

in 1802, his Medecine Clinique. His attention seems to have been first directed, particularly to mental alienation, from the circumstance of a young man, a particular friend of his, when affected with madness, escaping from his father's house into the woods, where he was devoured by the wolves. Pinel was entrusted with the charge of the Bicetre in 1792; and, in consequence of his admirable system of management, with the Salpetriere two or three years afterwards. He was appointed a professor in the medical school which was formed at the early part of the French Revolution. From the description given, the lunatic hospitals of Paris appear to have been in a horrid state at the time that Pinel undertook the management of them.

The first memoir is on the subject of Dumbness, produced by lesion of the intellectual powers, by M. Itard.

An ample series of observations made at the Royal Institution for the deaf and dumb, on children from the age of two years up to puberty, led M. Itard to the conclusion, that without being either deaf or dumb, children may have such an affection of the powers of attention and memory, and through them of the faculty of imitation, as to be prevented from acquiring the power of speech. Under such circumstances, they appear to be capable of little attachment; are more caressing than affectionate; are violent and fickle in the small number of their pleasures, and in attending to their own gratification, acknowledge no obstacles, moral fitness nor rights of property; and in short, in respect to their wants, their pleasures, and their passions, they present at the age of 10, 12, or 15, all the characters of early infancy.

After making out satisfactorily that there is no defect in hearing, M. Itard considers it necessary, to ascertain as correctly as possible, previously to commencing any plan for their improvement, the degree of intelligence possessed, which he does by making out how far they are capable of knowing either by name, or some natural sign, the articles more particularly destined to their use. When this degree of intelligence is found to be possessed, he thinks the faculties are capable of being developed by education; and with a view to this object, he first accustoms them to the use of the word without the natural sign; and then makes them imitate and employ short words composed of the vowels O and A, together with labial or dental consonants, as producing articulation which is visible. At first he connects such words with the sign-manual and uses them without it. After the pupil has acquired a good many easy substantives, he puts him on learning some adjectives of the same character, but which at first are limited to those expressive of magnitude or colour. He then goes on to neuter verbs, and afterwards to indispensable adverbs and prepositions, putting aside interjections and

conjunctions. Pronouns he has always found to be most difficultly learnt and understood, of which he gives some curious examples. If the endeavours made upon this plan are unsuccessful, M. Itard considers the faculty of imitation as in fault; and therefore confines his endeavours to the expression of such actions as are imitated and performed with the least repugnance and mal-address, complicating them in time in various ways, so as to make them more difficult. He also sets the pupil to copy some linear designs, with a view still further to improve the imitative faculty, and makes him also exercise the voice by the formation of various sounds, as whistling, crying, &c.

If all these endeavours fail, M. Itard used, as a last resource, means which limit the introduction of sensations from without to one sense only, that of hearing. This he does, either by confining the pupil to a dark room, or by covering his head with a mask of lined block tin, so carefully fitted as to exclude all light. The first effect of this plan, is to irritate and annoy the pupil exceedingly; but he soon becomes calm, and resigned, and in five or six days, attempts to express his wants by natural signs, or by sounds of the voice: and then he is found to be susceptible of the education which he before resisted. M. Itard has known two instances of success under the last plan, and about forty examples in all in which the dumb have acquired the power of speech.

The next memoir, on *inflammatory affections of the Brain, as productive of obstinate intermittent fevers*, is likewise *by M. Itard.*

In this communication, after noticing the connection of intermittent complaints with local affections of various parts of the body, as the pleura, some of the abdominal viscera, and the urethra, the author details several cases, from which he infers, that both acute and chronic inflammation of the brain and its meninges, often manifest themselves by intermittent symptoms; and that the fever known by the name of the *intermittente ataxique* is, in many instances, therefore, nothing more than a symptomatic fever, excited by cerebral inflammation. He thinks likewise, that the change from an intermittent to a continued form, in certain cases, shows that the type of a fever is less concerned in establishing its character and nature, than in marking the intensity of the local affection which produces it.

The next memoir is *on the number of the insane*, by *M. Esquirol.*

Many diseases have had the appearance of an increase, from the public attention being more particularly directed to them at one time than another. This was the case with *croup*, when that disease became so much the object of attention many years

since, and was likewise so with the *deaf and dumb*, when the distinguished success of the Abbe l'Epee brought to notice many examples of the disease, which would otherwise have remained in obscurity.

In England, on the first attack of insanity of George III. in 1788, the same circumstance operated strongly in bringing cases of madness to notice; but M. Esquirol agrees with the various other authors who have directed their attention particularly to this subject, that there is no good reason for believing that the number of the insane has increased, either in France, or in Europe generally, within the last forty years, which is the period to which he extends his notice. The terrors of the Revolution, and the dread produced by the presence of foreign troops, in the years 1814 and 1815, might have some effect in producing attacks of insanity; but the influence, he thinks, was small, and only temporary, and did not affect the general results.

He is of opinion that the writings of eminent physicians, particularly of Pinel, have awakened a lively interest for the insane, and produced an appearance of their increase; and that the improvements of lunatic establishments have been the means of augmenting materially the number of their admissions.

The next memoir is *on mortality in France, among the higher and lower classes*, by *L. R. Villermé*.

This valuable communication has been principally deduced from various official documents which have been published relative to the statistics of Paris, or from returns made relative to the amount and state of population throughout France, which are in the possession of the Minister of the Interior, or of different public boards. From a consideration of the various facts which have come under his notice, the author infers, that the mortality is much less in those parts of Paris, and districts of France, where the inhabitants are well housed, breathe a purer air, and have much of the comforts and enjoyments of life, than where there is greater poverty, and all the usual attendants of a lower order of society.

Comparing the first arrondissement of Paris with the twelfth, which are the most opposite of any in the wealth and general comfort of the inhabitants, the mortality was 1 in 58 in the former, and 1 in 42 in the latter; while the occupants of hospitals were 1 in 348 of the former, and 1 in 99 of the latter. But taking into account the whole number admitted into hospitals, and other places of reception for poor persons, (not military) from those two arrondissemens, the deaths were reciprocally 1 in 41, and 1 in 24.

In the Isle de St Louis, and the Quartier de l'Arsenal, the

deaths were 1 in 46, and 1 in 38. In the Quais de l'Isle de St Louis, the mortality was 1 in 52, and in the Rue de la Mortellerie 1 in 32.

In the well-ventilated, healthy prisons of Brest, the mortality was 1 in 49, but in the prisons in the department of the Seine it amounted to 1 in 11, and in the mendicity establishments of St Denis to 1 in 3. It must be observed, however, that the great mortality of the last-mentioned establishment is the cause of the mortality in the prisons of the department of the Seine being so high as 1 in 11. Excluding the depot of St Denis, the mortality would be only 1 in 21. Comparing rich with poor departments of France, in the one, the mortality was found to be 1 in 46, and in the other 1 in 33; but taking the most favoured portion of France, and putting it in competition with the lowest of Paris, the difference of mortality is between 1 in 50 of the former, and 1 in 24 of the latter.

With regard to periods of life, the same principles hold good. In the departments of the Orne and Calvados in Normandy, one-fourth only die before the age of 5, one-half before that of 45, and three-fourths before that of 70; while in the departments of the Chér and Indre, (in the interior of France, to which Bourges and Chateauroux belong,) a fourth die before the age of 5; one-half between 15 and 20, and three-fourths between 50 and 55. Of foundlings, 60 in 100 die the first year, in spite of the ardent zeal of charity, which cannot, however, make up for the want of milk, and of the care and watchfulness of a mother.

The next paper is on the *curative effects of Morphine* by M. Bally.

Morphine or Narceine, (for the author uses them as synonymous expressions) seems to have been first prepared by M. Seguin; and an account presented to the National Institute in 1804; but it was by the zeal of M. Sertuerner that public attention was at length directed to the substance, and its proper value ascertained. The author enters at large into the improvements adopted in the mode of preparing morphine, and gives the quantity afforded by opium as about one-sixteenth. Animals poisoned by acetate of morphine (which is the preparation generally employed by the author) exhibit traces of this substance in the alimentary canal after death.

The author gives a very long and elaborate detail of the effects of morphine and its combinations, of which we can only offer a slight outline. In small doses, as of an eighth or quarter of a grain, morphine is borne well upon the stomach; but in large quantities it produces vomiting, though the emetic operation does not seem to affect the digestion or appetite. It

has a constipating effect, and is therefore useful in old diarrhœas; but its first operation is sometimes to produce colicky pains, which, however, generally soon go off. In some cases, morphine acts as a vermifuge; and it has a tendency to produce a difficulty of micturition in men but not in women. It has no disposition to produce piles, nor does it act as an emmenagogue, nor in producing nasal or pulmonic hæmorrhagy. It does not augment arterial action, it does not lessen a cough, and has no sudorific nor heating property, nor does it quicken the respiration. It often produces itching and eruption in some parts of the body, as opium occasionally does.

In cerebral diseases the effects were unfavourable. As a means of producing sleep, morphine varies much in its operation. In very small doses, as from one-eighth to one-fourth of a grain, its calming soporific effects are most exhibited; but those vary much with the seasons, being in a much greater degree in cold and wet seasons, than in warm and dry ones; in which last it produces a tendency to general excitation.

In point of comparative narcotic strength, though sixteen grains of opium afford only one grain of morphine, yet a grain of the watery extract of opium is equal to about a fourth of a grain of the salifiable base.

The next memoir is on *the Insanity of Drunkards, or the Delirium Tremens;* by *Dr Leveillé.*

Spirituous exhalations not unfrequently produce headach and vertigo in persons exposed to them; but there is likewise some reason for supposing, from the observations of the author, that they will sometimes give rise to *delirium tremens* itself, in individuals of the most sober habits. The speedy and complete recovery of persons affected with this disease in its most severe form, which sometimes takes place without, but most frequently by, the agency of liberal doses of opium, shows that it is not to be regarded as connected with inflammation of the brain or alimentary canal. Occasionally, however, a series of symptoms, resembling very much those of the *delirium tremens*, will exhibit themselves, independently of the influence of alcohol in any form.

It will sometimes happen, according to the observations of the author, that the delirium may be accompanied by inflammation of the membranes of the brain, and that this, though removed by copious bleeding, will leave the delirium behind it. In this case, he considers the delirium and inflammation as merely co-existent, but as having no necessary connection with each other. The constant abuse of spirituous liquors will produce an irritating effect on the mucous membrane of the alimentary canal, as well as the ordinary one on the ence-

phalon. But where this happens, the delirium is not at all symptomatic of the state of the canal. It is the first symptom which exhibits itself, and after its removal by opium, the gastritis, or gastro-enteritis, may pursue their regular and independent course.

A chronic *delirium tremens* may become acute by a slight attack of indisposition, which, when removed, leaves the delirium in its original state. Sometimes habitual intemperance may be long indulged in with impunity; but the occurrence of any description of disease or accident will frequently be the exciting cause of its appearance. In such cases, it has often been erroneously regarded as symptomatic of the particular disease with which the patient may be affected, whether an internal inflammation, or a contusion, wound, or fracture.

The next memoir, which is the first of the surgical series, is on *penetrating wounds of the chest*, by *Baron Larrey*.

In this communication, the author enters at considerable length into an examination of the various nature, direction, and complication of penetrating wounds of the chest. When the cavity of the pleura is entered, and the lungs are untouched, as well as the nerves and blood-vessels of the thoracic parietes, a cure may be readily effected by bringing the lips of the wound together, and by a strict use of the antiphlogistic regimen.

If the effusion into the chest from wounded lungs or blood-vessels is moderate, absorption may take place, and the wound may be healed; but when this has been considerable, nothing but the operation of empyema is adequate to its removal; and it is to the circumstances which render this operation necessary, and to the mode of performing it, that the author directs his particular attention in this present communication. When, from the history of the accident, the elevation of the affected side, the oppression of breathing, obscure pulse, and general debility, the disposition either to sit up or to lie on the affected side, and the clear and sonorous sound produced by percussion, there is reason to suppose that the effusion has been considerable, the operation is urgently called for. But this cannot be attempted until there is every presumption that the hemorrhage has ceased, which it may be supposed to have done, if the pulse has risen after the accident, the heat become slightly elevated, the skin recovered its proper colour, and the respiration become more free; at the same time that the sanguineous discharge from the wound has assumed a dark colour.

In performing the operation, it is necessary to fix upon the most depending position compatible with avoiding the diaphragm. This, on the right side, will be between the eighth and

ninth ribs, and on the left, between the ninth and tenth. The incision should likewise be as far back as possible, about the place which answers to the anterior edge of the *latissimus dorsi*.

To prevent the admission of air into the cavity of the chest, the skin should be drawn upwards before the operation, so as to form a sort of valve; and the incision made into the cavity close to the edge of the inferior rib. The whole of the contents should be withdrawn at once, and if matters go on favourably, a healthy suppuration takes place in the natural course of healing, by supporting the powers of the patient, by proper bandaging, and by the use of some external counter-irritants to the chest, as the moxa. In young subjects, the cure may be effected in three, four, or six months; but in adults, hardly in less time than eight, ten, twelve, or fifteen months; while in persons advanced in life, years may be necessary for a complete restoration.

An interesting example is given of the case of a young soldier, who had two sabre thrusts in the right side of the chest, which had wounded the lungs, and cut through the root of the intercostal artery. The operation was performed about six days after the accident, when five litres (more than eight pints ale measure) of a liquid like the lees of wine mixed with clots of blood were withdrawn. An elastic gum catheter was introduced, to favour the escape of any remaining fluid, and notwithstanding the unfavourable circumstances, the patient was so far improved on the fifteenth day as to admit of more nourishment; and in ten months he was discharged cured. The affected side was, however, much contracted in its dimensions; the ribs had lost much of their curve, and lay close to each other; the right shoulder was depressed, and the diaphragm and viscera contiguous to it much elevated; the mediastinum had come into the right side, and the heart followed it, so that its pulsations were no longer to be felt on the left side. The left lung had become much more ample; and as the right lung was completely hepatized, the respiration was entirely confined to the left. The right arm was in a state of atrophy, from the injuries sustained by the axillary vessels and nerves of that side.

The next surgical memoir, containing *Observations on the Operation of Lithotomy*, is likewise by the Baron Larrey.

This paper contains the account of two operations, in which the calculi, which were both of oxalate of lime, were adherent to the bladder, and were removed with much difficulty. Portions of the mucous membrane of the bladder were found attached to one of the calculi, where it had been adherent; and

some additional portions came away during the cures. A bleeding vessel was taken up in each case, and soon after the operation the patients were put into a bath of 77° or 78° of Fahrenheit. Iced drinks, emollient *enemata*, anodyne emulsions, and, in one of the cases, repeated bleedings, were employed during the cure.

The Baron is of opinion, that the operation of lithotomy hardly admits of being carried to a greater degree of perfection than is the case at present, particularly when the surgeon employs a bistoury instead of the gorget. In lithotomy, two accidents only, are, he states, to be guarded against; the wounding the rectum, and the internal pudic artery; but the former cannot occur if the intestine is previously emptied; nor the latter, if the bistoury is carried up transversely against the ascending crus of the ischium. The Baron says that he owes his great success in lithotomy, to guarding against hemorrhage, which he does by always putting a ligature in the position of the transverse artery of the perineum, whether it bleeds or not. He attributes the mortality of the operation of lithotomy in a material degree, either to hemorrhage, or the pressure employed for the purpose of preventing or arresting it; by which last circumstance, inflammation and infiltration of urine into the cellular membrane frequently take place.

The next memoir is on a *new method of treating artificial anus*, by the Baron Dupuytren.

The author details at great length the circumstances which give rise to this distressing occurrence; the state of the parts concerned in it; the means of relief ineffectually adopted for its removal, and the circumstances which led him to devise a more successful mode of treatment in cases where the injury to the intestines was very extensive.

Considering that the upper and lower portions of intestine usually adhere to each other, and to the parietes of the abdomen, the object is to make a communication between the cavities of such upper and lower portions, through the double and adherent coats which form the partition between them; but then as the peritoneal covering of the upper portion is in contact with the peritoneal covering of the lower, any opening through the partition dividing them must necessarily open the peritoneal cavity, and thus produce the most serious danger. Hence the possibility of making an immediate opening of communication with safety is at once precluded. But then it occurred to Baron Dupuytren, that if he could produce an adhesion between the peritoneal coats of the two surfaces, he might thus, without risk or difficulty, make the opening proposed. He made a great number of experiments on animals, with a view to this particu-

lar circumstance; and at length invented an instrument which perfectly answered the purposes in view. He terms it an *enterotome*, and it consists of two branches, united by crossing, and capable of being fixed together at any distance. The branches are made to take hold of the partition just in the way of forceps, and thus are then fixed together in such a way as to make that degree of pressure on the partition between the two portions of intestine which is necessary to destroy their vitality. In the course of seven or eight days, an opening by this means takes place in the partition, and thus the desired communication is established between the two portions of intestine. But then in the course of the first two or three days, sufficient inflammation has been excited by the pressure of the instrument to produce adhesion between the two contiguous portions of peritoneum, and thus to prepare the way for the opening which is soon to be effected in the partition itself.

It appears that 21 operations have been performed with this instrument by the author, and 20 by other surgeons, and of those, three only terminated fatally. Of the remaining 38, 29 were cured effectually, and 9 were obliged to wear a bandage on account of a fistular opening still continuing.

The next memoir is on *the obstacles to delivery by the misconformation of the Fœtus; by A. Dugés.*

The usual length of a new born child is eighteen inches, and its weight from six to seven pounds; and any considerable increase of volume, particularly of the head, will necessarily produce obstacles to delivery. The hydrocephalic cases which occurred in the Hospice de la Maternité were not more than 1 in 2904, and dropsies in other parts of the body much less numerous. Obstacles likewise arise from the increase of the usual parts of the body, constituting the various descriptions of monstrosity, of which the author gives a long detail.

In the section of pharmacy there are three memoirs.

The first contains an *Analysis of the Bark of the Solanum Pseudo-Quina, by M. Vauquelin.*

This substance was brought from Brazil, by M. Auguste Saint-Hilaire, and was found to contain one-twelfth part of a bitter vegetable principle, in which its febrifuge quality was supposed to reside. It is remarkable, M. Vauquelin observes, that no trace of *silica* was found in its composition, though this substance is so generally diffused in the vegetable kingdom; but it appears, from the large quantity of lime in various states of combination, which it contains, to have grown in a soil eminently calcareous. One may thus recognize, at great distances, the nature of the soil in which vegetables grow, by the analysis of their ashes; " and in this way I have observed," says this ex-

cellent philosopher, " that corn sown in earth newly marled, contains much oxalate of lime, because the carbonate entering into plants through the means of the carbonic acid arising from the decomposition of the manure, is decomposed by the oxalic acid formed during vegetation; and the carbonic acid thus liberated, serves for the further nutrition of the plant. Calcareous matter," he adds, " is not, therefore, as some agriculturists think, a simple mechanical compost."

The second paper in the Section of Pharmacy contains *chemical observations on the different concretions of the human body, by M. Laugier.*

In his general view of the state of our knowledge as to human concretions, the author has occasion to notice the accusation made against M. Fourcroy, of having brought forward, without acknowledgment, many of the facts relative to the nature of urinary calculi, which Dr Wollaston first published. This he is anxious to repel, not only by the circumstances of character, but by showing that Fourcroy, as well as Vauquelin, was unacquainted with the English language, and must therefore have been ignorant of the existence of the paper alluded to.

The next paper contains *Analytical researches on the Violet, the Viola odorata, and an examination of its active principle compared with that of the Ipecacuanha;* by *M. P. F. G. Boullays.*

The violet contains an active principle called *violine*, resembling that of ipecacuanha, which resides in every part of the plant. The emetic principle of ipecacuanha has been called *émétine* by Pelletier; and the author would call it *exotic emetine*, while that derived from the violet he denominates *indigenous emetine.* The indigenous émétine, when impure and acidulated, resembles in its emetic properties, as proved by experiments made at the Hospital de la Charitè in 1825, by Dr Chomel, the émétine derived from the ipecacuanha; but when perfectly pure, it is to be reckoned among vegetable poisons, like the pure émétine of the latter plant. Some experiments by M. Orfila, to evince the poisonous qualities of violine, are annexed.

The last memoir is *on the vegetable substances known by the name of ipecacuanha which are employed in medicine*, by *M. Lemaire-Lisancourt.*

The author gives a long history of the various plants which possess properties analogous to the ipecacuanha both at home and abroad. The *Cephaelis ipecacuanha* is that which is mostly employed in commerce; and its emetic effects were said to have been first observed by the Indians of Brazil, who remarked that a species of their dogs, called *Guara*, when un-

well, assembled on the sides of rivers in which this plant was found macerated, and became sick by drinking freely of their waters. M. Vauquelin found that a specimen of the *ipecacuanha branca*, the root of the *Viola Ipecacuanha*, (*ipecacuanha blanc*) brought from Rio-Janeiro, had the same principles as the common ipecacuanha, but contained only half the quantity of émétine, and therefore required to be given in double the dose.

The second volume of the Memoirs of the Royal Academy of Medicine, is so far altered in its character from the first, as to have its papers inserted indiscriminately, without reference to classification.

A eulogium of the *Baron Percy*, and of *M. Vauquelin* commences the volume, with Necrological Notices of M. Cadet de Vaux, P. Moringlane, and J. R. Boudet, and a general report on the Secret Remedies, by M. Itard.

The Baron Percy was a very distinguished army surgeon, and by his zeal, talents, and humanity, improved much the arrangements of the French medical service. His writings were numerous and useful. He was made a professor in the Medical School of Paris, at its first establishment, and succeeded Lassus in the first class of the Institute, in preference to Corvisart and Deschamps. He was born in 1754, and died in 1825.

M. Vauquelin was one of the most celebrated chemists of Europe, and was distinguished for talents, precision, simplicity, and candour. He was brought forward principally by Fourcroy; and it is pleasing to see how cordially those two great chemical philosophers co-operated in the improvements of the science to which they devoted themselves. Vauquelin was at the head of the department of the mines, and succeeded Fourcroy in the chair of chemistry, on the death of the latter in 1809. He was a chevalier of the Legion of Honour, was a deputy for the department of Calvados in 1827, and died in 1829, at the age of 66 years.

He had much of the acuteness of discrimination for which Dr Wollaston was so deservedly famed; and long habits of experiment led him, as they did Dr Wollaston, to the most simple methods of making them. If a new substance were presented to him, he first "analyzed it by his senses, before he decomposed it by his reagents, and almost always this second process only confirmed the first."

An interesting anecdote is given of Vauquelin's promptitude and humanity, on the day of the attack on the Thuilleries and destruction of the Swiss Guards. One of these guards, to escape the fate of his comrades, made off from his pursuers down an adjoining street, found a door open, which he entered, darted

like an arrow across a court, entered a laboratory, and threw himself at the feet of Vauquelin, to whom it belonged, and of two females who were with him. Not a moment was to be lost. In an instant his clothes were snatched away, thrown into the furnace and burnt; his moustaches were cut off, his face and arms blackened with charcoal; and an apron and workman's old dress thrown round him. The transformation was immediate and complete; and when the ruffians rushed in, knife in hand, to immolate their victim, not a trace of him was to be found. It was as if he had sunk into the earth; the soldier had vanished, and Vauquelin's laboratory man only remained. The two females were Fourcroy's two sisters, to whom Vauquelin, in their change of fortune, afforded an asylum. He had lived with them, and they now owed their support to him in his new profession of pharmacien.

Of the first memoir, by *G. Breschet*, entitled, *Anatomical, Physiological, and Pathological Researches on the Human Ovum, and on that of the principal families of vertebrated Animals*, we have merely to say, that a minute and detailed account given in the forty-first volume (p. 161) of this Journal, supersedes the necessity of any notice on the present occasion.

The next memoir is on the subject of *Rhinoplastie, or the art of supplying the Nose;* by *J. Lisfranc.*

This paper contains some improvements in the operation as usually practised; particularly in avoiding the necessity of dividing the fold produced by turning the triangular piece of skin cut from the forehead on its axis, to bring it to the proper place for uniting, so as to fabricate the artificial organ. An account of the particular measures adopted have been, however, already published in various additional forms.

The next paper is by *M. Philip Ricord, on some facts observed in the Hospital for Venereal Patients.*

The observations are principally on females, and made by means of the vaginal speculum, which the author seems to have employed to excellent advantage.

Next follows a report by *M. Husson, on the Physiological improvement of the auditory faculty in the deaf and dumb.*

We had occasion to notice in an early part of this article, some observations made by M. Itard on dumbness, not arising, as is usually the case, from deafness, but from lesion of the intellectual powers. During an experience of thirty years, at the Deaf and Dumb Asylum in Paris, M. Itard has had occasion to study every ramification of affection connected with the unfortunate inmates of that establishment, and has thus had an opportunity of observing, that one-fifth only of the persons admitted there are entirely deaf; and that of the remaining four-fifths, one-half confound speech with other noises, but the re-

maining half, or 40 per cent. can hear more or less distinctly, and are on this account capable of instruction. He, therefore, devised many modes for their improvement, and applied to the government for the necessary funds to enable him to carry his benevolent plans into operation. The Minister of the Interior, in consequence of the favourable report of M. Husson, which was adopted by the Academy, very liberally complied with the request; and M. Itard's plans of instruction were soon carried into effect at the asylum. Of their success, we shall of course be informed at some future period.

A note by *M. Duval, on the sensibility of the hard substance of the teeth*, contends for this sensibility in every part of them except the enamel.

The next paper is on *Maize as an article of nourishment, particularly for women giving suck, and for children of tender age*; by *M. E. A. Duchesne, M. D.*

The culture, productiveness, mode of employment and salubrity of maize, are treated of in considerable detail; but Cobbett's publications, among others, have made the subject sufficiently well known in this country. By experiments instituted on himself, the author found that 200 grammes (about 7oz. Avoirdupois) of maize, with a portion of butter, supported him sufficiently well for twenty-four hours; and that the proportion of 7.4 Avoirdupois each per day, divided into two meals, sufficed for 110 persons at Perpignan.

The next memoir is *on the cause of the presentation of the head in delivery, and on the instinctive, or voluntary movements of the human Fœtus*; by *M. Paul Dubois.*

As the author has found that the head of a fœtus, from the fourth to the ninth month of pregnancy, does not sink in water more rapidly than the other parts of the body; and that in abortions, under the seventh month, when the head is large in proportion to the general dimensions of the body, than at an after period, the number of head presentations, to those of the breech, are as five to four, whereas at the full period they are as twenty to one, he is hence induced to put aside entirely the circumstance of the weight of the head, in accounting for the phenomenon in question. He considers it as fully proved, that the *fœtus in utero* possesses sensation and locomotive power, and that the various movements which it makes *in utero* are in consequence of some uneasy sensation produced, either by illness or want of nourishment on the part of the mother, or some change of position made by her, from the effects of which the fœtus endeavours to relieve itself. Hence he infers, that the position which it assumes in the latter period of pregnancy is chosen as a more easy one than any other, and that the head, occupying a smaller space than the pelvis, is more agree-

ably placed than the latter would be, in the smaller extremity of the ovum, while at the same time the upper and lower fœtal extremities have more room for movement in the ample space which the large end of the ovum affords.

The next paper is *on instinct, and the instinctive acts of the human species;* by *M. E. F. Dubois.*

In this memoir, the author examines the characters by which the actions of instinct and reason are distinguished, and their various predominance according to sex, period of life, and state of civilization. Instinct is principally connected with self-preservation, or with the preservation of the species. The acts depending upon it are at once in a state of perfection, and derive no improvement from experience. Man can transmit his riches and his intelligence, but not his instinctive faculties; and the latter may have an existence when moral life has not commenced. The operations of intellect require that there should be organs; that they should be properly formed, and able to transmit materials from without, to the nervous centres within, in order to put them in a position to perform their part in the animal economy. The brain is the organ which presides over intellectual operations; but this is not necessary for the performance of instinctive acts; and the author gives examples of life being carried on, and certain instinctive functions connected with it exercised, in fœtuses born without heads, and destitute entirely of brain and cerebellum. In these cases, however, the *medulla oblongata*, or spinal marrow, or both existed, without which, and the nerves proceeding from them, the author considers that no instinctive acts could be performed. He mentions many analogies in the inferior animals, both as regards natural formation, and the effects of removing certain parts of the encephalon.

The next memoir is *on some displacements of the uterus, and on the Pessaries best adapted for remedying them;* by *M. Hervez de Chegoin.*

Pessaries the author considers as made in too uniform a manner, to be accommodated to the various circumstances in which they are required, and he mentions a case of retroversion of the *uterus*, when there was an unusual concavity of the *sacrum*, in which the use of a bottle of India rubber of sufficient magnitude, projecting in front, and terminating in a neck resting in the entrances of the vagina supported the uterus without producing any of the inconveniences which pessaries frequently occasion.

The next memoir contains *practical considerations on the treatment of diseases of the uterus; with an account of an improvement in the formation of the speculum;* by *M. Melier, M. D.*

By means of some improvements which the author has made in the speculum, he is able to treat, with much efficiency, diseases of all kinds in the uterus or its cervix, by the opportunity thus afforded of employing water or medicated baths and dressings of various kinds. He makes many important practical observations, relative to the treatment of various diseases of the uterus, which the use of the speculum has very much facilitated.

The next paper consists of *observations on some involuntary functions of the organs of locomotion and prehension;* by *A. Foulmouche, M.D.*

The author gives many examples of singular anomalies in the motive powers of horses, occurring, more particularly, after exposure to a very warm sun, and long marches. These sometimes consist in a total want of capacity to move forward, and sometimes in a propensity to push on, which nothing can moderate or check; and these seem to the author to arise from inflammation of the arachnoid membrane which covers the cerebellum, *tuber annulare*, and *medulla oblongata.*

He mentions several instances of a somewhat similar kind in the human subject, and infers from them, that there is a central moving power, by which the muscles concerned in locomotion and prehension are actuated; and that, though this is usually connected with volition and intelligence, yet it is capable of acting separately; that this power is connected with a different part of the encephalon from that in which volition and intelligence reside; that its seat is probably in the *cerebellum*, *medulla oblongata*, and upper parts of the spinal marrow; and that when it is affected, the sensations and intellectual faculties undergo no necessary alteration, because the organic affection has not extended to the *tubercula quadrigemina*, with which, or the neighbourhood, we presume that the author considers perception and the operations of intellect to be more immediately connected.

The last paper of the volume is a very long one, *on penetrating wounds of the Chest;* by *J. B. E. Piron, M. D.*

The author enters largely into historical and practical details, and differs in many respects from the opinions entertained by Baron Larrey on the subject of removing sanguineous effusions from the chest, which we had occasion to notice a few pages back. He thinks that in performing the operation of *paracentesis* of the chest, for which he would prefer the designation of *thoracentesis*, the opening should be made on each side, a rib lower than the position recommended by Larrey; namely, on the left side between the tenth and eleventh ribs, and on the right, between the ninth and tenth; that emollient injections into the cavity of the chest are frequently ser-

viceable; that canulas are advantageous and not at all dangerous; and that the admission of air does no harm.

Our analysis of the remaining volumes of the Academy's memoirs, we must resume in a future number.

ART. II.—*Practical Observations on the Nature and Treatment of Nervous Diseases, with Remarks on the Efficacy of Strychnine in the more obstinate cases.* By GEORGE RUSSELL MART, M. R. C. Surgeons, London, &c. London, 1835. 12mo, pp. 185.

THE principal object of this work is evidently to recommend the employment of strychnine as a therapeutic agent in various paralytic and nervous affections. It is well known that the employment of this remedy endermically, or on the surface of the *cutis vera*, so as to be absorbed, and in this manner produce through the medium of the circulation its physiological and therapeutic effects, has now for several years been before the profession; and we have on this point the reports of Fouquier, Lembert, and Dr Shortt. Without abandoning altogether this mode of administering strychnia, Mr Mart proposes to exhibit it chiefly internally in minute doses, until it produces effects, which he represents to be very generally, if not invariably, sanative.

In this mode of administration there is nothing original; since, previous to the discovery and preparation of *strychnia*, it is well known that several of the drugs from which that active substance is obtained, were given internally for the cure chiefly of rheumatic palsy, and other forms of impaired or irregular and abnormal motions, and anomalous painful affections.

The mode of administration practised by Mr Mart is to give three times daily a pill containing at first in general only one sixteenth part or one-twelfth part of a grain; in the course of two, three, or four days to increase this dose to one-eighth part of a grain daily; and, according to the physiological effects and the endurance of the patient, to increase the dose gradually to one-fourth or one-third of a grain in the course of twenty-four hours. In several instances, he began at once with one-eighth or one-sixth of a grain, always in the form of pill, to be taken twice, three times, or four times daily. In this manner he increased it to half a grain in the course of twenty-four hours, (case 1st;) to three quarters of a grain, (case 2d;) to one-fourth of a grain, four times daily, or one grain in the twenty-four hours, (case 3d;) and one-fifth of a grain four times daily, that is, four-fifths of a grain in the day, (case 4th.)

This remedy Mr Mart employs in the manner now mentioned in the different forms of palsy, whether hemiplegic, with symptoms of affection of the cerebral functions, paraplegic, partial or mere paralytic tremors. The physiological effects are, as in most other cases, after the lapse of from eight or ten to fourteen or twenty days, frequent involuntary spasmodic twitches, generally about the face, often in the arms, hands, legs, and feet, not unfrequently with peculiar sensations of pricking pain. The therapeutic effects are said to be removal of the vacant, fatuous expression of the countenance, gradual return of command over the voluntary muscles, in a space of time varying from five or six weeks to two months, ten weeks, or three months.

At the same time, especially in cases of local palsy, Mr Mart employs the remedy endermically, and exhibits sulphate of quinine, and other remedies calculated to operate on the general strength.

This article the author recommends as a therapeutic agent also in amaurosis, nervous indigestion, tic-douloureux, and neuralgia in general.

Tic-douloureux he thinks may in many instances depend on the presence of an unhealthy condition of the blood, and this he proposes to remove by the previous use of blood-letting, cathartics, and saline remedies. He cautions the reader also against the error of ascribing to strychnine specific effects.

In neuralgia and other painful disorders depending on a morbid state of the nerves, he represents strychnia to be particularly beneficial; but he observes also, that as these diseases are often combined with morbid states of the system at large, and sometimes with symptoms of an inflammatory condition, he recommends the propriety of combining it with antiphlogistic and purgative remedies, and occasionally to give up its use, till inflammatory symptoms are subdued.

ART. III.—*Report from the Select Committee on Medical Education; with the Minutes of Evidence and Appendix. Part III. Society of Apothecaries. London.* Ordered by the House of Commons to be printed 13th August 1834. *(Continued from page 271.)*

IN the last Number of this Journal, after making some remarks on the rise and progress of the Society of Apothecaries, we began our examination of the extraordinary evidence tendered by the members of that body, to the Committee appointed by the House of Commons, to investigate and report on the present state of medical education. We proposed first to consider the manner in which the Society exercised the privileges and fulfilled the duties entrusted to it by the Charter of James I., and

the Act of 1815. The duties we classed under five heads,—the examination of medicinal substances kept by apothecaries, the prosecution of unqualified practitioners, the prescribing of a course of education to be followed by candidates for the license of the Society, the examination of candidates, and the keeping at the Hall a supply of pure articles used by apothecaries. From a careful examination of the evidence, which, be it remembered, was with the exception of Dr Christison's, given by the office-bearers or partisans of the Society, we had the conclusion forced upon us, that the Incorporation had failed to perform its duties, and abused its privileges, inasmuch as it had either neglected to visit the shops of its members and licentiates or made but a partial search,—avoided the putting down of quackery, and exercised its powers of prosecution to harass the successful practitioner,—fostered a spirit of malice and envy in its licentiates, by holding out inducements to them to become informers,—prescribed a meagre and inefficient course of education,—instituted capricious if not positively unfair examinations,—and failed in guaranteeing to the practitioner the purity of the drugs and preparations vended at the Hall. We now proceed to the second part of our examination.

II.—Suggestions offered by the Witnesses, respecting Medical Education and Privileges. We shall arrange these under six heads, viz. education, admission to examination, and privileges, privileges which the incorporation is willing to relinquish, suppression of quackery, examination of chemists and druggists, and grades and remuneration of the profession.

1. *Suggestions offered respecting the education of medical students.*—By every witness examined on the subject, an apprenticeship, of longer or shorter duration, is recommended as an indispensable portion of the practitioner's education. Mr Nussey allows that the apprenticeship at present enjoined is unnecessarily long, and that three years could be quite sufficient, perhaps two, but not less, at the same time that he states, "that no disadvantage arises to a young man from passing three, four, or five years in the apprenticeship of an apothecary." He, moreover, gives it as his opinion, that it should form the first part of his education, though in cases where the student has attended the prescribed classes first, he admits that pharmacy might be learned in twelve months. Dr Burrows, after asserting the necessity of a five years apprenticeship, declares two or three to be quite sufficient for acquiring all the knowledge, which the apothecary's shop is capable of communicating. Afterwards, however, he goes much farther, and admits that it would be perfectly possible, with advantage, to lessen the duration of servitude, and that twelve months would be sufficient to learn all the necessary manipulations. Mr Bacot objects to the length of the

apprenticeship, and to its being entered upon by the pupil before his seventeenth or eighteenth year. Though he reckons a limited apprenticeship very useful, he would exempt all from it who do not begin their studies till the age of twenty-one. Mr Ridout, though he thinks apprenticeship useful, would not make it compulsory. Mr Watson gives it as his opinion, "that apprenticeships, to a certain extent, are desirable; that they may vary in length, according to the local situation of the party apprenticed. In a town where there is a school of medicine, the apprenticeship may be longer than where there is no school. * * * Apprenticeship in the country should be short, because the country apprentice has not the opportunity of following his studies as he should do." Mr Field considers apprenticeships useful, but would limit them to two or three years.

To sum up in a single sentence these contradictory statements An apprenticeship of five years duration is very useful, and one of two or three years is absolutely necessary. The information no doubt may be communicated in twelve months, but idling away two or three years in acquiring it is by no means a disadvantage to the pupil. And yet, while in the very act of uttering these absurdities, the witnesses have the effrontery to disparage those who are both morally and intellectually immeasurably their superiors, and modestly to ask the Legislature for a continued enjoyment of privileges which they have abused, and which, even if used with moderation, would, nevertheless, be unjust to other bodies of the profession, and prejudicial to the best interests of the public.

The witnesses are very anxious to convince us that an apprenticeship is useful to all parties, and that it is upon this ground that they would maintain it. The advantages accruing from it to the pupil, are stated to be, 1*st*, that he acquires a better practical knowledge of his profession, than he otherwise would; and 2*d*, that he is subjected to a moral superintendence, without which he would be apt to neglect his studies, connect himself with vicious associates, and spend his time in debauchery. Now it must be remarked that this is altogether begging the question. It is first assumed that a student can neither acquire a practical knowledge of his profession, nor lead a tolerably virtuous life, unless kept in the fetters of apprenticeship, and from this it is inferred justly enough that bondage of longer or shorter duration is not only useful, but absolutely necessary. But the truth of the premises has not been proved—nay more, no attempt has been made to prove it, if we except the insinuation of Dr Burrows contained in the following expressions. In answer to the question, whether he considered an apprenticeship for so long a period as two or three years, to be necessary for a student who had gone through a complete course of chemistry,

botany, and materia medica, he says, "I do not think it would, but there is a moral good to be derived from it; for I have known young men, at the age of 16 or 17, who had come up to London, in order to attend the hospital, completely led away from pursuing the course of study which had been prescribed for them, and rendered ruined characters. I think, therefore, that it is much better to keep them under the eye of the master, acquiring information in his house, than to let them loose upon the public to do as they please, while they are students in the hospital." This is rather a ludicrous illustration of the proverb *ex pede Herculem*. Because Dr Burrows has observed a few raw, half-educated lads, whose moral training had been neglected by their parents, or those to whom they were intrusted, plunging headlong into folly and vice, he takes it for granted that all young men will do precisely the same; that sixteen or seventeen years of sound moral and intellectual education, even when combined with every motive which can influence the mind to honourable exertion, must be utterly inefficacious in controlling the passions of youth; and that nothing save the payment of a fee, the subscribing a formal deed of servitude, and the being employed in manual labour can repress evil propensities, and fit the student for receiving scientific instruction.

Though in the former volumes of this Journal, an apprenticeship has been shown to be in most cases useless, if not positively detrimental to the student, we are forced by the pertinacity of our opponents, again to offer here a few remarks on the subject. We acknowledge the necessity of youth being morally controlled. But we would have that restraint implanted within the bosom of the student, by a previous course of education, which should strengthen the judgment, elevate and refine the moral sense, and teach him to seek pleasure, where alone lasting pleasure can be found, in the zealous discharge of his moral and religious duties, and in the enthusiastic pursuit of science. Let it not be deemed visionary to expect in youth principles of action so elevated. The history of the profession supplies us with many instances of men, who, without any control save what they felt within themselves, began their studies at an early age, resisted all the allurements of folly and vice, gained the admiration of their fellow students, and the respect of their seniors, and have had their names enrolled in the honourable record of those who have not lived in vain for mankind. It is time enough to talk of the necessity of a student being placed under the immediate inspection of a guardian, to save him from destruction, when it has been shown that a well-conducted preliminary education fails to keep him in the path of duty when exposed to temptation. If such an education cannot be completed at 16

or 17 years of age, add a year or two more, and if this do not succeed, we should recommend the individual to abandon all thoughts of entering upon a profession for which the constitution of his mind thus shows him to be altogether unfit. Still, if any one agreeing with us in these views should urge that, to avoid all risk, it would be well for the student to be placed under moral superintendence, we reply that a man in active practice is utterly incapable of performing the duty. Granting him to be possessed of that rare combination of mental powers which is absolutely necessary to fit him for the task, still, if he has sufficient professional occupation for his apprentices, it is impossible for him to find time to superintend the conduct, and, what is of greater consequence, to regulate the minds of his pupils. In his presence he may command propriety of conduct, but his absence will afford sufficient opportunity to permit the apprentice to indemnify himself for the temporary restraint. The pupil may be imbued with caution, but not with virtue. If there be no temptation, restraint is unnecessary,—if there be, mere coercion will render him cunning and deceitful. If control be necessary, place the student with a clergyman, or procure him admission as an inmate in a family in which he may feel that he has a home, and the correct feeling and conduct of the members of which, will do more to prevent his going astray, than all the hasty advices and domineering reproofs of a master.

From the mode in which the witnesses speak of the moral advantages of an apprenticeship, it might be supposed that those unfortunate physicians and surgeons who have never been articled, must be inferior, in correct feeling and conduct, to the great mass of apothecaries, who have in their youth been initiated into the mysteries of washing mortars, cleaning lamps, lighting fires, pounding drugs, and carrying messages and parcels. We have no intention of instituting any invidious comparisons. We content ourselves with asking every impartial reader, professional or non-professional, the simple question, *Is it so?*

Mr Nussey and Dr Burrows seem to deny that any menial offices are performed by the apprentices of apothecaries. Had they shown themselves to be well acquainted with other matters connected with the state of the profession, which ought to have come more immediately under their notice, we might have paid some attention to their statements on this point. As it is, however, we feel inclined to trust to our own sources of information, and to state that, during the first years of his apprenticeship, the pupil is a mere drudge.

Let us now consider the other advantage attributed to apprenticeship. Mr Nussey states that the pupil "gains a knowledge of the tools with which he is to work in after life;" "that

he becomes familiar with the various complaints and the various doses and combinations of medicines;" and that "he practically acquires a knowledge of the pharmacopœia." By Dr Burrows it is said, "if he is properly attended to, he lays the basis of that knowledge, which afterwards may be made so useful, and applied with so much better effect, when he comes into the hospitals to complete his education." But Mr Ridout, not content with the great advantages of *moral control* and practical *knowledge of tools*, informs Mr Warburton, the Chairman of the Committee, that the English apothecaries are vastly superior to the continental practitioners, and that this is owing to the former having served an apprenticeship. The whole passage exhibits in so ludicrous a light, the ignorance and arrogance of those who demand from the Legislature the control of medical education, that we cannot help extracting it.

He is asked "for a young man of the age of sixteen to pass an apprenticeship to a practitioner, the next three years and a half of his life, is that the most advantageous mode for him to occupy his time, with a view to his ultimate proficiency in his profession?" His answer is; "Taking the subject up comprehensively, as I have been bound to do, I think it is so decidedly; because what would be the alternative? A young man at the age of 16, 17, or 18, would, under other circumstances, be sent to a public medical school, to attend lectures and hospital practice; and would be exposed there to various temptations and ruin probably, but into too many errors, unchecked by any unauthorized control. On the other hand, in addition to the moral control, which the student, as an apprentice, would be subject to, he would enjoy numberless opportunities of gaining progressively a practical knowledge of his professional duties. *My opinion is, that the advanced state of medical practice in this country*, [we are astonished he did not add pharmacy, of which the apothecaries are the special guardians and promoters,] *as compared with the practice on the continent, has been mainly owing to the apprenticeship system.* The act of 1815 requires that a medical student should produce, on his examination, a testimonial of good moral conduct: the master of an apprentice is an individual capable of bearing testimony upon this subject, or withholding it if he should see fit; the knowledge of this power beneficially influences students. Then a medical practitioner surely is better able than an unprofessional man, to direct the studies of a medical student, and to assist him in them. There are [is] a great number of medical and surgical cases occurring daily at his surgery. Medical subjects also form the topics of conversation and discussion, and the student is called upon to see patients, to make inquiries, and

to report the result of them to his teacher. In all these various ways a very beneficial result follows. Apprenticeship is open to abuse, I admit, but the question is, whether the abuse outweighs the use or not." Again he states, that "if the medical schools were organized as colleges, where young men were subject to superintendence and control, and if students were afforded an opportunity of seeing the classes of diseases before referred to, namely, diseases affecting children under five years of age, and the aged above seventy, then the apprenticeship system might be done away with; but at present hospitals and medical schools do not afford any control over medical students; nor do they afford them practical information respecting those diseases which destroy more than one-half of the population."

Before proceeding to examine these statements, we cannot avoid calling the attention of the reader to the discovery of Mr Ridout, that, to the apothecaries of England serving an apprenticeship, we are indebted for any superiority we may possess over the practitioners of the continent. It would have been in the highest degree interesting to us, to have been informed by what process he came to this novel and startling conclusion; and it is much to be regretted, that, for the satisfaction of those who, unacquainted with Mr Ridout's competency to give any opinion on the subject, may not be disposed to acquiesce in it, he did not furnish us with the names of those apothecaries who have enlarged the boundaries of medical science. We say *apothecaries*, for it is obvious that the discoveries and observations of those physicians and surgeons who may have been induced or constrained to connect themselves with that society, can with no show of reason be held as the results of an apprenticeship. To pass over anatomy, physiology, and surgery, general and special pathology, midwifery, and medical jurisprudence, we call upon Mr Ridout to point out any addition made to our knowledge of botany, chemistry, materia medica, or pharmacy, by any mere apothecary, and we fearlessly undertake to produce, for every such instance, at least ten discoveries made by men who were never articled to a master. Vague general assertions may impose upon those who are ignorant of the history of the profession, but can have no weight with the well-informed members of our body.

The professional advantages stated to be derived from an apprenticeship are a practical knowledge of pharmacy, and the routine of practice, a well directed course of reading, and habits of observation. If these advantages could not be secured without serving an apprenticeship, the question would be set at rest at once. We shall, however, show immediately that not only can they be obtained without it, but that they are not like-

ly to be secured by means of it. We at once admit that a competent knowledge of the external characters of the substances of the materia medica, and of the processes of pharmacy, cannot be attained without a considerable portion of time being devoted to the examination of the former, and the performance of the latter. But in order that the pupil may have an opportunity of doing both, it is not necessary that he should become a bondsman. If the apothecary has a sufficient knowledge of the subject to enable him to teach it, and time to devote to it, let him take pupils, and remunerate himself by their fees. But this is too straight forward a course for the worshipful society. There is not enough of mystery in it, and, above all, it would force the members really to communicate information in return for the fees which they receive, instead of quietly pocketing them, and leaving the pupils to acquire knowledge as they best may. But in the shop of the apothecary or the surgery, as it is frequently denominated, it is impossible for the pupil to acquire a competent knowledge of the external characters of the substances of the Materia Medica. The substances are seldom kept in their natural state. They are generally procured from the wholesale druggist in a condition fitted for immediate use. Many individuals who have served a five years apprenticeship, we have seen unable to name scammony, jalap, and colocynth, and few of the salts in the form of crystals. The warehouse or shop of a wholesale druggist, or lectures and demonstrations on Materia Medica, with the use of a good collection of specimens, would be the most effectual way of communicating full knowledge of the subject. In respect to pharmacy, we should be glad to know how much information the apprentice of the apothecary acquires. The making up of a few of the pills, tinctures, and syrups, which happen to be favourites with his master in his routine practice, he may learn in a small way; but the preparation even of these is frequently varied from caprice or motives of economy. Of the rest he may know absolutely nothing, and none of the important chemical preparations are prepared in the private laboratory. By serving an apprenticeship, then, the pupil receives imperfect or erroneous information; while by attending the laboratory of a public dispensary or hospital, he will be fully instructed in all the routine of making infusions, tinctures, mixtures, powders, pills, and ointments, besides seeing the various modes of combining medicines in the treatment of disease, and learning to dispense prescriptions. The purely chemical part of pharmacy can only be studied with success in the laboratory of the chemist, and hence the College of Surgeons rendered a course of practical chemistry imperative, while the apothecaries, who boast on all occasions of their zeal

for the advancement of pharmacy, made no provision for its being adequately taught.

We have now shown that the pupil cannot acquire a proper knowledge of materia medica and pharmacy by means of an apprenticeship to an apothecary, and that he may attain the object in another way. At the same time we must admit, that it would be highly advantageous to have pharmacy in the most extensive manner, taught by competent individuals as a separate course, which should be rendered imperative on all classes of the profession.

The next advantage stated to be the result of an apprenticeship is a knowledge of routine practice. If by routine practice, be meant the mode of treating those many every-day cases, which occupy the greatest part of the time of the profession, we must say that it would be learned much more effectually, by attending a well conducted dispensary, where the pupil will see fifty cases for one which he would as an apprentice. But in reality, the articled pupil sees little or no practice till the last twelve or eighteen months of his apprenticeship, and then, from having before him only the mode of treatment adopted by one individual, he is apt to fall into a sort of wholesale way of treating disease, and his practice becomes routine in the most obnoxious sense of the word. There is something absurd, too, in instructing a man in the application of the principles of different sciences before he knows anything of the sciences, and to treat diseases of parts, of which he knows accurately neither the situation nor the structure. This subject it is unnecessary to pursue farther.

As to the master directing the course of his apprentices reading, we have but one remark to make. However reluctantly, we are forced to state our opinion, that nine-tenths of the apothecaries are incompetent for the task, and that the remainder have not time for the duty.

A habit of observation is not acquired during an apprenticeship, in consequence of the monotony and routine nature of the pupil's duties. It is much more likely to be excited at a medical school, where so many circumstances concur in awakening curiosity and fixing attention.

But the witnesses themselves have virtually acknowledged the truth of these views, for, when pressed with the question why, if an apprenticeship was so necessary, it was sometimes merely nominal, and at other times a great part of it dispensed with; they reply, that the master by his covenant undertakes to teach, or cause the pupil to be taught, certain branches, and that if he do not do it himself, he is fulfilling his part of the engagement, by sending his apprentice to a medical school, by

causing him to be taught by others. This is in reality giving up the whole point.

We close our observations on the evidence respecting apprenticeships by the following extracts, exhibiting the true motives of the society for making so vigorous a stand for this unnecessary addition to medical education.

Mr Bacot. "What is the customary premium paid to a master apothecary, on binding to him an apprentice? It varies very much, I should say, in London perhaps two hundred and fifty guineas.—In the country? In the country probably not so much; one hundred and fifty or two hundred guineas, as the case may be.—Will not apothecaries of their own accord be desirous of engaging apprentices, on account of the moderate rate at which they thus provide themselves with the service of assistants? Probably, I think it is an equal advantage to master and pupil.—*He obtains an assistant at a cheap rate, besides receiving the apprentice fee? No question about it;* it is a mutual advantage; and a very great one, where the young man is capable of learning a great deal, and the master is able and disposed to teach him."

Mr Ridout.—"Were the clause which makes it obligatory to serve an apprenticeship, to be repealed; and were apprentices, in consequence less easily procurable than they are at present, would not a master practitioner, who was without apprentices, have to provide himself with assistants from among the young men who had just completed their medical education? There would be a difficulty of obtaining a sufficient number for the wants of the profession, and *considerable expense would be attendant upon that mode of obtaining them.* Great apprehensions would be entertained, such as indeed are actually entertained, that the assistant, becoming acquainted with the professional connections of the practitioner with whom he lived, would profit by that acquaintance, to the injury of his principal."

Mr John Watson.—"Although apprenticeship were no longer compulsory, would not the *prospect of obtaining apprentice fees, and the services of apprentices at a cheap rate,* be sufficient inducements to make a general practitioner desirous of employing apprentices? *Yes.* Young men would always find a sufficient number of masters willing to take them."

The other suggestions of the witnesses respecting medical education may be speedily disposed of. They are willing to shorten the apprenticeship, consider it desirable that the pupil should have farther preliminary education, and that all ranks of the profession should receive the same medical education. Two three months courses are preferred to one of six months duration, because the teacher can thus bring twice under the pupil's notice the leading facts of his science. Botany, midwifery, and forensic medicine should be attended in the summer. All regulations of the society ought to be submitted to the Secretary of State for the Home Department for approval.

The preference shown for three months courses is most injudicious, and only proves most clearly the total unfitness of the Society to legislate on medical education, since most of the sciences connected with medicine cannot be taught in three months, and a detailed course is much superior to an abridged one with a mere repetition.

2. *Admission to examination and privileges, which the society is willing to abandon.*—The suggestions regarding these we shall state very briefly. It is proposed that no candidate shall be admitted to examination till he shall be 22 years of age, that an apprenticeship shall not in all cases be indispensable, and that medical officers of the army, navy, and East India Company, as well as the fellows and licentiates of medical incorporations, who admit the members of the Apothecaries' Company to practise within their jurisdiction, should be allowed to exercise their profession in England, without undergoing any farther examination; that, as the witnesses express it, there should be complete reciprocity. Some of the witnesses exhibit a good deal of blustering about Scottish graduates and surgeons supplying England, and by the turn which they give their answers, would leave it to be inferred, that the society was forced to protect itself against the exclusive spirit of their northern rivals, who were anxious to monopolize the practice within their own bounds, and encroach upon the society's privileges. It is not positively stated that the northern incorporations have ever interfered with an English apothecary settling in Scotland. But their answers are unfairly constructed in such a manner as to leave the impression, that any apparent illiberality on the part of the society is owing to that of their opponents. We defy the learned Thebans of the Apothecaries' Company to point out one instance in which a licentiate of that body has been interfered with by the Scotch incorporations.

The society appears to be willing to abandon the right of examining the shops of its licentiates, which is not attended with any pecuniary profit, and the right of prosecuting, which it finds itself unable longer to retain.

To a general board of examiners, all the witnesses object, because they consider that the Society of Apothecaries has performed its duties as to examining, and because they do not think that the members of the three bodies of the profession could act in harmony. If such a board, however, were to be appointed, the witnesses do not object to any member of the profession, of whatever rank he might be, being appointed to it, unless he happened to be a teacher. Should a general board not be appointed, some of the witnesses propose that the candidate, previously to his being allowed to practise, should be ex-

amined both at Apothecaries' and at Surgeons' Hall. A general standard of education is desirable. The examinations should be demonstrative as far as possible, and conducted in private, that the candidate may not be embarrassed, and that his mistakes may not tell against him in after life.

3. *Suppression of Quackery.*—The means recommended for this are, 1. the publication of a list of all licensed practitioners; 2. conferring some privileges on them; and 3. Mr Nussey's suggestion, that chemists and druggists shops should, if kept by unlicensed individuals, be marked with the words "not licensed."

The second suggestion appears to us to be the only useful one, and would be quite effectual, if government were to take the matter into its own hands, and prosecute the unqualified.

4. *Examination of Chemists and Druggists Shops.*—No chemist and druggist ought to be allowed to carry on business without having previously passed an examination in botany, chemistry, and Materia Medica. To whom the examination ought to be entrusted the witnesses do not state, though it is clear enough that the Society of Apothecaries would be happy to undertake the task.

5. *Ranks and Remuneration of the Profession*—Taking the evidence as a whole, it appears that the witnesses are in general favourable to the education of all members of the profession being the same, leaving it to the individual to cultivate any branch of it which he might feel inclined to pursue. All unite too, in the desire that the practitioner should be remunerated by the fees of his visits, and not by the price of the medicines ordered, though some of them seem to think that this arrangement would not be acquiesced in by the public.

III.—Charges and Insinuations made against the Edinburgh School of Medicine.—Before examining these, we shall give them in the words of the accusers.

Dr Burrows, after giving it as his opinion that no teacher ought to be an examiner, being asked whether this was to place the teacher above the imputation of any selfish motive, replies, "Not only the imputation, but the temptation: for there may be a temptation, and I can only account for gentlemen who have been educated at Edinburgh, and who have received their degrees there, being subsequently rejected at Apothecaries' Hall, by imagining that some favouritism must have existed; and I have had some opportunities of knowing that men, very ignorant indeed, have passed in former years, through some such cause." * * * "Explain more fully than you have done, the allusion you have made to the rejection of candidates at Apothecaries' Hall who had been passed at Edinburgh. At what period did this happen? When I was an examiner, between August 1815 and 1817, one gentleman came before me, who, according to testimonials he brought, posses-

sed every requisite qualification, but who, to the great astonishment of the court, was found most deficient. Indeed, a great many other gentlemen who have taken their degree at Edinburgh have been refused; and I can only account for their having passed through that ordeal, and received the degree of that highly respectable University, by supposing that there must be something defective in the course of their examinations.—In which points principally did you find such candidates deficient? They were generally deficient.—Not in any particular branch of medical science? I remember that they were deficient in chemical knowledge.—To what period do you refer? To the period between 1815 and 1817, when I was an examiner; and I know that a great many have been rejected since.—When you were a member of the board of examiners was the examination fairly conducted? Extremely so; there was every possible disposition, as far as I saw, to act in the most kind and encouraging way possible to candidates, and to give them time to consider, before they returned their answers; and I do believe, that while I was there, not one was rejected without the utmost deliberation.—The course of education at that time was not so extensive as it is at present? No, it was not.—Have you had anything to do with the Society of Apothecaries excepting as a member of the board of examiners? Nothing since that period at all.—Had the Edinburgh gentleman to whom you adverted, undergone five years apprenticeship? I really cannot tell.—Could they have presented themselves for examination unless they had done so? Probably they had; they would not have been admitted to examination, I presume, without showing their indentures.—They must have been apprenticed to an apothecary in some part of Great Britain? Yes, I presume so."

Mr Bacot. "It has been stated that many medical students from Scotch Universities have been rejected by the Court of Examiners? There has been a considerable number, certainly.—Has the proportion of Scotch students rejected been greater than the proportion of other students? I am not prepared to say that; but out of a given number of Scotch students examined, a large proportion has been rejected.—Has a larger proportion of Scotch students been rejected than of students from other schools? Yes, I think that may be said.—Are you prepared by reference to any authentic return of the cases of students rejected to establish that point? No. I have only a general recollection that it is so, from the return that has been given in.—In what department of medical science have the Scotch students, who have been rejected, been found most deficient? In the knowledge of Latin, materia medica, therapeutics, and the practice of medicine. These are the points in which they have generally failed. I think particularly in materia medica and therapeutics.—Can you say which of the medical schools in Scotland has supplied the largest proportion of rejected candidates? I have not considered the matter sufficiently to give such an answer as I should wish to give to such a question. I think, however, that rejections have been most numerous among

students from the University of Edinburgh. * * * Is it principally in pharmacy that the Scottish students who are rejected are found to be deficient? In Latin very frequently, in pharmaceutical chemistry, in materia medica, and the knowledge of drugs. Some of them are wholly ignorant of the external character of drugs."

Mr Ridout. "Have you any explanation to offer of the alleged greater proportion of Scotch students who have been rejected? I was not aware, until it was stated to me, what that proportion was. I certainly felt surprized at the defective knowledge of many of the candidates, who, I ascertained, had received their education in Scotland.—Have you proved that allegation by ascertaining what proportion the number of the rejected candidates bears to the number examined in the case of Scottish students, as compared with students from other schools? No, I have not. I do not know the proportion, I only know the fact.—Of course, the Scottish gentlemen, who have been rejected, must have served a five years apprenticeship, or they could not have been examined? Certainly. —Were any of these persons, who had graduated as Doctors of Physic, in a Scotch university? Yes, several."

Mr John Watson.—This gentleman gives us one reason for not permitting Scottish practitioners to exercise their profession in England, "that the means of practical instruction in Edinburgh are so limited, that a man, unless upon previous examination, ought not to be deemed to have acquired a degree of practical knowledge sufficient to entitle him to practise as a medical practitioner.—What limited means do you particularly refer to in Edinburgh? I allude to this, that in Edinburgh there are at least 1000 medical students. The only means they have of gaining practical instruction is at an hospital, in which there are about 250 patients. In London there are 800 or 900 students, and the means of affording them practical information are eight large hospitals, and not less than fourteen or fifteen very well regulated dispensaries. Now it may be easily imagined, that in an hospital containing only 250 beds, the means of giving instruction in practical medicine to 1000 students must be exceedingly limited indeed."

It will be observed that all these statements are advanced upon vague impressions, recollections, and in some instances, as in that referring to the means of practical instruction, on no information whatever, but on profound and unrivalled ignorance; and the only documentary evidence which we have in support of them is returns for three years, 1831–2–3,—one of the rejected, cause of the rejection, and the schools where they were educated; another of the numbers of those approved or rejected, and the schools at which they had been educated; and a third of the hospitals and dispensaries attended by the approved and rejected candidates. We shall endeavour to analyze these tables, and state *first*, the rejections of those educated at the Edinburgh private school; *secondly*, of those educated at the University; *thirdly*, of

graduates of the University, and *fourthly*, of licentiates* of the College of Surgeons.

It appears, then, that in the three years mentioned above, three graduates of the University, and six licentiates of the College of Surgeons of Edinburgh, seven students who had received their education within the University, and ten educated at the extra-academical school were rejected. From another table we find that of eighty-five candidates educated at the Edinburgh school and admitted to examination, twenty-seven were rejected, and of twenty-one holding diplomas of the Royal College of Surgeons, five were rejected. From the other table it would appear that of six of the ten rejected candidates educated at the extra-academical school, one was rejected for being deficient in chemistry and anatomy; one for being unable to read or translate prescriptions; one for being ignorant of Latin; one for being ignorant of most of the substances of the Materia Medica; one for being deficient in Latin, and very ignorant of anatomy; one for being imperfect in Latin and chemistry, and very ignorant of general principles; one for being imperfect in Latin; one for being very deficient in Latin, and very incompetent in general and pharmaceutical chemistry; two for being generally deficient, and one for being very deficient in the properties and doses of medicines, and of the treatment of persons.

Of the seven educated at the University, one was imperfect in chemistry and ignorant of Materia Medica; one inaccurate in chemistry, and very ignorant of Materia Medica; one very deficient in Materia Medica and anatomy; one very ignorant of chemistry and Materia Medica, and generally deficient; one imperfect in Latin, deficient in chemistry and ignorant of Materia Medica, one totally ignorant of Materia Medica; and one generally deficient. The three graduates of the University of Edinburgh were rejected for ignorance of the Latin language.

Of the six licentiates of the Royal College of Surgeons of Edinburgh rejected, one was very ignorant of chemistry; one altogether incompetent to translate a prescription; one deficient in Materia Medica and pharmacy; one ignorant of Latin; one very imperfect in Latin, and one deficient in chemistry and ignorant of Materia Medica and therapeutics.

From another table it appears that, in 1831, out of twenty-seven students, nine were rejected, and out of four licentiates two. In 1832, out of thirty-five students, thirteen, and out of eight licentiates two. In 1833, among twenty-three students, there was no rejection, and only one in nine licentiates.

* We see in the table of rejections, the initials of several *members* of the College of Surgeons. We suppose *licentiates* are meant, who have no right to take the title of *members*, that being reserved for fellows.

The two returns just alluded to differ. According to the first, twenty-six were rejected; according to the second, out of 106 students and licentiates, thirty-two were rejected; and a third table makes the number of rejections twenty-seven. Thus we have 26, 27, and 32 to choose from. We find a Dr Macartney too, figuring in the returns as a teacher in Edinburgh, we presume Mr Robert B. Upton, the clerk to the Society, who vouches by his signature for the accuracy of the returns, alludes to Dr Macartney of Dublin, and therefore, we have excluded the solitary pupil who attended his lectures from the calculations made above.

From other returns we find that, in ninety-six students who attended the Royal Infirmary of Edinburgh, and who were examined in 1831–2–3, thirty-one were rejected. Such are the statements which, put forth as they have been in an insidious manner by the witnesses, are calculated, unless refuted or explained, to injure the reputation of the Edinburgh school, if the authority of a few comparatively obscure individuals should influence the public at large.

To attempt to refute the assertions founded on vague recollections, and dictated perhaps by prejudice, which have been made respecting the alleged ignorance of Edinburgh graduates, licentiates, and students, is what we are by no means called upon to do, inasmuch as no proof has been given of their accuracy. We may remark, however, 1*st*, that, constituted as the examining board of the Society was in 1815, and several subsequent years, we are not inclined to place any confidence in the opinion which those who then acted as examiners might be pleased to form regarding a candidate educated at a school to which they were decidedly hostile. 2*dly*, That the charge of partiality and favouritism, brought by Dr Burrows against the University of Edinburgh, uncalled for and unsupported as it was, will not fail to be scouted by those who know any thing of the examinations to which candidates were subjected at the period to which he refers. That these were of as searching a nature as they now are, we do not mean to assert; but that they were much stricter than those instituted by any other board, at the period alluded to, few but the prejudiced will be inclined to deny. We are not told *when* the gentlemen who were rejected, graduated, and every one knows that much of the minutiæ expected from a student is apt to escape in a few years from his memory. A judicious examiner would make allowance for this; but that is more than we could expect from men newly installed in office, and ignorant of their duties. We have no doubt that the examiners finding themselves dressed in a little brief authority, would consider it a notable way of adding to their importance to reject some dozen graduates

of one of the most celebrated medical universities of the day. The temptation was almost irresistible to men of contracted minds, and we are not surprised to find that the achievement is still looked back to with pleasure.

It would appear that the medical boards of the Army, Navy and East India Company, as well as all our professional brethren at home and abroad, had been labouring under an erroneous impression as to the facilities for medical education at Edinburgh, and the strict nature of the examinations instituted there. It was reserved for the learned apothecaries, who, by the caprice of fortune, were suddenly transformed into medical dictators, to show the world the hollowness of the pretensions of the Edinburgh school. And who are the individuals who take it upon themselves to reject as incompetent for practice men, whose qualifications have been scrutinized by Cullen, Gregory, the Duncans, Hope, Thomson, Christison, and others, whose names command respect wherever medical science is known? Are they not all of them obscure individuals, and, with the exceptions of Dr Burrows, wholly unknown to the profession beyond the bounds of London. We retort upon them the charge of ignorance. No man whose mind had been at all properly educated could have exhibited the contracted views and ignorance shown by the witnesses. One of them, whose business it is to superintend the pharmaceutical department, displays a lamentable deficiency of information respecting pharmacy and chemistry. Ignorance in the examiner, especially when combined with self-esteem, may cause the rejection of the examined.

On throwing the causes of rejection for the three years 1831–32, and 33 into a tabular form, we were struck with the number rejected in Latin. We should like to know what the test applied was. It could not have been the reading a portion of the few chapters of Gregory's Conspectus, and the first and third books of Celsus, on which the society requested candidates to prepare themselves. We suspect it must have been prescriptions written in barbarous Latin, of which some few specimens sometimes reach us here. It appears, from information which we have received, that the usual way of testing a candidate is to put a slip of paper, with a short extract from Celsus or Gregory printed on it, before him, and request him to write a translation. If it be correct, of course he passes; if not he is rejected, unless he find favour in the eyes of the examiner, who may point out the mistakes, and send him to correct them. This in one instance lately was done three or four times, but there was a reason for it. We can easily conceive, however, that no unfortunate student from Edinburgh would meet with a similar indulgence.

We must object also to the mode in which the test is applied. A difficult passage might be selected for an obnoxious candidate, and he might, for a slight mistake, arising from not having the context, be declared deficient or totally ignorant of Latin. The best way obviously of testing a candidate's knowledge of any language is to place a *book*, not a *scrap*, written in that language, before him, and request a translation.

In conclusion we beg to state, that no *licentiate* of the Royal College of Surgeons of Edinburgh, and no *graduate* of the University, could, with any fairness, be rejected for ignorance of the Latin language, unless a period had elapsed between his being examined here, and his appearing as a candidate at Apothecaries' Hall, sufficient to permit him to forget it. In respect to the *students* of the University, and extra-academical school, we are not called upon to say any thing. One observation, however, we feel ourselves impelled to make. Latin is part of a preliminary course of education, and from these gentlemen not having appeared for examination at any of our boards here, we may fairly infer that they were not educated in Scotland, but were specimens of the results of the moral and intellectual training received by a five years' apprentice from an English apothecary. Before a master would transfer an apprentice to a medical school, we have been led by the evidence to suppose, that all preliminary information would have been communicated, and, therefore, upon the heads of those who betrayed their trust be the disgrace.

We have on this point one question to propose. Will the examiners allow us to examine them in the Latin language, and ascertain their fitness to act as examiners? Judging from the style in which they write, we have a pretty correct idea of the result of such examination.

Neither the university nor the school can be fairly charged with the rejection of those educated at them who have not appeared for examination before one of our boards. We may, with justice, we think presume, that these men had been previously rejected here, and tried the Apothecaries' Society as a last resource. The friends of very few young men wish them to leave a school without obtaining some testimonial of their proficiency.

But it has been said that Edinburgh has not the means of giving practical instruction, and it is stated that 1000 pupils attend an hospital containing only 250 beds. Mr John Watson, the secretary of the court of Examiners, must have been in perfect ignorance of the Edinburgh school when he made this assertion. All the medical students here do not attend the Infirmary during the whole course of their studies. Not more, perhaps, than

350 are attending at the same time, and, besides the Royal Infirmary, containing 380 beds, there are two chartered Dispensaries, affording relief to thousands of patients, in addition to twelve others, less extensive in their operations, one Lying-in-Institution, and four Dispensaries for parturient women. All these are within reach of the student, and may be attended on payment of a very moderate fee.

We shall not quit this subject, however, without a few remarks on this oft-repeated statement regarding the deficiency of the means of acquiring practical professional knowledge in Edinburgh; and this we do, we beg it to be understood, not for the sake of members of the Court of Examiners of the Society, who must be regarded as persons by ignorance incapable of appreciating the justice of the statements now to be made, but for the information of those candid and impartial judges who can recognize truth and propriety, unbiassed by any consideration of the quarter from which it proceeds, or the parties to whom it relates.

We begin by repeating what we have long ago said, that it is not the extent of the hospital alone, or the number of the beds and patients which it contains, that constitutes a good or efficient institution for affording to students the means of instruction in medicine and surgery; neither is it the number of the hospitals and dispensaries which any city presents, that renders that city an efficient and useful school of medicine. It is entirely, we contend, the manner in which the hospital is managed, and the manner in which its medical officers perform the duties of visiting, reporting the cases, and keeping, or seeing kept, the records of the cases, and lastly, conducting the dissections, and applying them to the purposes of clinical instruction, that renders the hospital good, bad, or indifferent, as places of professional education.

Now, in this point of view, we maintain, without the fear of contradiction by the candid, or the dread of refutation by the well-informed, that the Edinburgh school of medicine affords, and has afforded, means of practical instruction certainly not equalled by any school in these islands, and we even doubt whether by any on the continent. To what, we beg to ask, has the Edinburgh University owed the high position which she has held, and unrivalled celebrity which she enjoys, as a medical school, ever since her foundation? The question is easily answered by those who know her history; but to all others it is incomprehensible. It is simply this. At the time at which the University of Edinburgh came forward to instruct the intending members of the profession in the elements of medical and surgical knowledge, her teachers did not content themselves with giving systematic instructions on the synthetical plan only. They knew

well that in the mere synthetic mode of instruction, no provision was made for proving the accuracy and soundness of their pathological principles or therapeutic directions; no provision was made for training the mind of the pupil to the important duty of observing and reasoning on facts for himself; and that no provision was made for rectifying errors which might exist both in theory and practice, or for promoting the general progress of medicine and surgery as an art and as a science. These objects they saw could only be attained by taking the pupils to the wards of the hospital, teaching them to observe the phenomena of disease, and distinguish those of one disease from another, showing them the effects of different modes of treatment and of different remedial agents, and instructing them, as opportunity occurred, in the important duty of observing and recording the appearances after death, whether these were the cause or the effects of disease. These teachers, saw that whatever erroneous doctrines they might teach from the academical chair, would assuredly be rectified, or at least brought to the most severe of all tests, at the bed-side of the patient, and that their pupils would thus be provided with a constant means of judging of the soundness of the doctrines inculcated by their teachers. The ordeal to which the medical professors in the University of Edinburgh thus submitted was the most severe that could be imagined; and it was so much the more meritorious in them to undergo it, that, with the exception of the schools of Utrecht and Leyden, no medical school in Europe presented the example of a similar ordeal. It is impossible in the present day, when this method of teaching is familiar, at least in Edinburgh and the great continental schools, to form any adequate idea of the strength of mind requisite to encounter this trial; and it is only by mentally transporting ourselves back to the middle of the eighteenth century, when the distance between the teacher and his pupil was immense, and when the latter was taught in all other seminaries to look with a sort of reverence, bordering on veneration, on the former, that it is possible to form any conception of the fortitude requisite to encounter this comparison of theory and practice, of doctrines and facts.

It is needless to say that the professors of the Edinburgh University had their reward. They did not proclaim themselves as the only persons capable of legislating on medical education. They did not come forward to depreciate any attempts made by others to propagate correct views of medicine and surgery, or to facilitate the instruction of the young in the knowledge of these useful and honourable arts. They did not attempt, by misrepresentation where they knew, and arrogance and bold assertion, where they were ignorant, to mislead the public and the Legislature upon their own services, or those of others, in

the improvement of medical education, and the elevation of the profession as a liberal and scientific body. They proceeded in a quiet, unobtrusive, but persevering manner, in the business of teaching medicine and surgery on the twofold plan of the synthetic and analytic method, by systematic lectures, and by clinical instruction; and in no long time the merits of the method were so fully recognised, that it was imitated and adopted in almost every celebrated medical school in Europe, with the sole and discreditable exception of that city which the Society of Apothecaries hold up as affording infinitely better means of acquiring practical information than Edinburgh. Yes, —it is in this curious discussion, an important fact, of which, it is good for Mr John Watson to be informed, that among the eight large hospitals with which the city of London was blessed, for we believe, that, excepting the Westminster, they were all at the time referred to in existence, and three of these were of much more ancient origin, not a single clinical lecture was delivered, no physician visited, reported, and prescribed as the professors of the University of Edinburgh did, nor are we aware, that any one attempted to apply to the valuable purpose of illustrating practically the systematic instructions of the lecture-room, the cases of actual and complicated disease as they are presented in actual practice.

The practice of teaching medicine by means of hospital attendance, and reports, and epicritical observations on the nature and treatment of the cases was commenced in Edinburgh by Dr John Rutherford, in the year 1748, and was continued for about nine years, till the year 1757, by this gentleman, with the occasional aid of Dr Monro, the Professor of Anatomy and Surgery, and Dr Whytt, the Professor of Physiology and the Institutes of Medicine.

In 1757, when Dr Rutherford was already sinking under the weight of years and infirmity, Dr Cullen undertook the duty of teaching medicine by means of clinical lectures, and continued, with the occasional assistance of his colleagues, Dr Monro, Dr Whytt, Dr John Gregory, and Dr Francis Home, to officiate in this capacity for the space of eighteen years. The number of cases at this time set apart for this purpose rarely exceeded twenty-two or twenty-four. Yet such was the value of these instructions, and of the system of observation and experiment introduced by them, that it is impossible to doubt that most of the improvement in modern pathology and therapeutics, and a large proportion of the simplification which the sciences of Materia Medica and Pharmacy have undergone, originated in the Clinical Wards of the Royal Infirmary of Edinburgh. It is certain that the pathological doctrines, which slowly undermined, and at length completely subverted the system of Boerhaave, then

universally received, were first explained and illustrated in the clinical lectures which Dr Cullen delivered in the Royal Infirmary; and it is not less certain that, of the physiological and therapeutic doctrines which the same physician unfolded in a single course of lectures on materia medica in the year 1761, and which effected in that branch of medical knowledge the greatest and most beneficial revolution, perhaps, ever witnessed within so short a space of time, the most important materials were collected in the same practical school.

The energy and utility of the system which owed so much to the diligence and assiduity, and the talent for observation of Dr Cullen and Dr Francis Home, were ably maintained by Dr James Gregory, Dr Hope, Dr Duncan Senior, and Dr James Home; and a method of instruction, which had been proved to be so beneficial, was not suffered to fall into desuetude, or languish for lack of zeal. The number of patients allotted for the purpose of clinical observation was increased to thirty-two or thirty-four, but as these were the most serious and formidable cases selected from the whole population of the hospital, and as the succession was rapid, the pupils were, in the course of six months, made more familiar with the phenomena and emergencies of disease, the methods of treatment and the effects of remedies, and were taught a larger proportion of morbid anatomy, than in the course of an equal number of years they would have learned in any other situation. This was indeed the only establishment of the kind in Great Britain, and the concurrent testimony of the most eminent foreign physicians proves that it was much superior to any of the few clinical establishments yet on the continent. Such was the celebrity of the clinical institution of Edinburgh, indeed, that not only was every eminent physician destined for practice in England or the colonies trained in this practical school, but many foreigners, who had it in view to practise or teach in the principal cities of Europe, eagerly availed themselves of its manifest advantages.

But it was the peculiar merit of the Edinburgh school to be not only the first to recognize the advantage of combining analytical observation and practice with synthetical instruction and system. That school has further invariably gone on with, and sometimes preceded, the advancing progress of medical science, and the wants of its votaries. When the conviction of the value of clinical instruction was so strong and general, that the number of pupils was increased to an extent inconvenient to be benefited by the visit and reports by a single clinical professor in two wards of moderate size, the system was enlarged, and the facilities for instruction were in 1824 multiplied by the addition of two large wards, containing each twenty-five patients, and by two professors visiting, and reporting, and prescribing at

the same time; while, instead of two weekly lectures, four were delivered on the cases treated. By this arrangement the number of clinical pupils, varying from 120 to 140, was divided, so that greater numbers could at the same time enjoy the benefit of clinical instruction.

A still further increase in the opportunities for clinical instruction took place in the years 1829 and 1830, by two of the ordinary physicians attached to the hospital being authorized to deliver clinical lectures for the benefit of the pupils of the Royal College of Surgeons. At the present moment a larger proportion of cases is in the Royal Infirmary made available to the purpose of clinical instruction, conducted regularly and systematically by daily visits, daily reports, epicritical lectures, and demonstrations in morbid anatomy, than in any other hospital in Great Britain of which we are aware. To the purpose of instruction in clinical medicine, eight wards, containing 162 patients, are devoted.

But the University of Edinburgh has shown herself foremost and most anxious to provide ample means of instruction, not in clinical medicine alone. The medical school of that seminary was not only the first, but, for a long time, the only one in which the principles and practice of surgery were taught by clinical lectures. Lectures on the cases treated and the operations performed, in the surgical wards, were first delivered in the Royal Infirmary by Mr James Russell; and for above thirty years did this indefatigable surgeon continue to deliver two courses of lectures annually for the benefit of the students attending the surgical wards. In this duty he began to receive the assistance of the ordinary surgeons, viz. of Mr Allan in 1824, and of Sir George Ballingall in 1826—a measure so much the more necessary, that Mr Russell lectured on cases under the management of the other surgeons, and consequently might have felt himself constrained to speak less freely of the practice pursued than he would have done, had the cases been under his own management. Even this system, however, had advantages. But as these seemed to be counterbalanced by its disadvantages, upon the appointment of Mr Syme as Professor of Clinical Surgery in 1833, a new method was adopted, in the allotment of separate wards for the cases under the management of that gentleman, and which are made the subject of clinical observation for the graduates, or such of the surgical students as chuse. At the same time the ordinary surgeons were authorized to continue the system of teaching surgery by clinical instruction, for the benefit of the pupils of the College of Surgeons. At the present time, from 103 cases under surgical treatment, from 75 to 80 are selected for the purposes of clinical instruction.

In proposing and carrying into effect these several improvements, the medical officers have been most cordially and effici-

ently aided by the Managers of the Royal Infirmary, who have on all occasions evinced the greatest possible readiness and zeal to render the benefits of the Institution useful, not only to the sick poor, but to the advancement and improvement of medicine and surgery, and to the multiplication and extension of the means of professional improvement. Is it requisite to add, that all this have they done by their own exertions and those of the medical officers of the institution, unaided by any of that patronage or those pecuniary grants which are so liberally lavished upon the hospitals and dispensaries of a sister country, and without which they could not exist. Can any similar example of energy, zeal, and devotion to the cause of medical education be adduced, either in any of the eight hospitals of London, so triumphantly brought forward by Mr John Watson,—or in any other hospital in Europe. We believe, that of the circumstances of the most of these hospitals we are more or less informed; yet we can mention none which can in this respect be compared with the Royal Infirmary of Edinburgh,—none, we repeat, in which, in the same extent of population, and with such scanty and precarious sources of support, so much has been done to alleviate the distress of the sick or injured poor, and to render the necessary sufferings of that class of the community available on systematic and methodical principles to the improvement of medical education. If the London Hospitals really afford such unrivalled means of instruction, how does it happen that no regular course of clinical observation and tuition is yet instituted. In neither of the Colleges of the London University can this be said to be done, unless during the last season; and, so far as we are informed, it cannot be compared with the efficient and extensive system of clinical instruction, both in medicine and surgery, carried on in Edinburgh.

We could easily, by giving a similar account of the principal Dispensaries in Edinburgh, adduce facts equally conclusive as to the advantages afforded by the Edinburgh Institutions, for improving pupils in the practical knowledge of their profession. On this, however, our limits will not permit us to enter, nor is it necessary. The single history of the method of clinical instruction, continued now for ninety years in the Royal Infirmary, is perfectly sufficient to prove the gross ignorance of Mr John Watson and his associates, in the statements they have made regarding the means of practical knowledge afforded by Edinburgh, and how unfit these gentlemen are to give any opinion with regard to medical education, or the means by which it may be best conducted.

From this digression we have now to return to the consideration of the alleged deficiencies in the knowledge of candidates.

No graduate has been found deficient in the knowledge of the practice of physic, anatomy, or botany.* The solitary licentiate who was rejected for inability to read and translate prescriptions might have been puzzled by the illegible nature of the writing, the uncouth hieroglyphical contractions, or the barbarous Latin of the practitioner. The ignorance of chemistry displayed by two licentiates of the College of Surgeons, and of Materia Medica, and pharmacy by other two, may have been owing to their having studied the Edinburgh Pharmacopœia, instead of the London, and perhaps in a great measure to the ignorance of the examiners. A student who would give a process for the preparation of quinine, using turpentine instead of alcohol, might be rejected by Mr Field for ignorance of chemistry and pharmacy, and if examined on *Cassia fistula* by the name of *Cathartocarpus fistula*, he might be puzzled, and rejected for total ignorance of materia medica by an examiner who wished to do so.

We have thus shown that the charges brought against the Edinburgh school are utterly groundless, and the result of prejudice and ignorance. Even if we had not so satisfactorily rebutted them on the ground we have taken, we might easily have explained away the rejections in another manner.

To render an examination a proper test of qualification, it is necessary that a uniform standard should be adopted, and that it should be undergone, either in public, or before a board sufficiently numerous to guarantee the community against incompetent individuals being let loose upon them, and the candidate against unfairness or harshness. The publicity of examination we do not advocate, as many circumstances occur, which might render it inexpedient. But a board such as we have mentioned we hold to be indispensably necessary. Still with all this, there will be always individuals who barely come within the standard, and who, in a few months may, through idleness, fall so far below it as to be rejected by the same board, if at that period they should present themselves.

This explanation we would have adopted, had we not seen good grounds for believing that the statement which we have made contains the true view of the case.

We must prolong this tedious, and to us unpleasant investigation, by calling the attention of the London physicians to the following statement made by Mr John Watson. * * "Physicians, though they have received a high education, have not been always instructed in pharmacy. I have seen most re-

* It is extraordinary that none should be rejected in botany, seeing that it is not a part of the curriculum enjoined by the College of Surgeons. This in part might have been explained by the Society's humane officer, who brought the specimens from Chelsea; but he is dead. The few candidates rejected on botany from other schools could not have been aware of this functionary's liberality.

markable mistakes made in prescriptions by physicians who had not been so instructed; mistakes by which, in consequence of their misinformation on the effects of the medicine made up, they have involved the apothecaries to whom their prescriptions were sent in some difficulties." The London physician will observe, that he is charged not only with ignorance of the preparing and compounding of medicine, but with ignorance of the effects of those substances, with the properties of which it is his especial duty to be acquainted.

We now close this article with repeating what we stated at the commencement of our examination, that the evidence, with the exception of that furnished by Dr Christison, is characterised by a degree of arrogance, ignorance, inconsistency, prejudice, and absurdity, which we could not *a priori* have believed it possible for any set of men, having the slightest pretensions to learning, to have exhibited.

We trust that Mr Warburton and the Committee will value this evidence at its proper rate, and that, if the Legislature shall deem it right to put medical education and the profession under any control, except that of the universities and colleges, now *bona fide* schools of medicine, it will take care not to place it under an ignorant body of monopolists, but rather under the executive of the country, by which, in the present day at least, no irremediable grievance can be inflicted.

If any of our readers shall deem these remarks unnecessarily severe, we refer them to the evidence itself, in which they will find matter more than enough to justify the tone of our strictures.

We look anxiously for the next part of the Report, and shall lose no time in laying it before our readers.

ART. IV.—1. *The Human Brain, its configuration, structure, development, and physiology; illustrated by references to the Nervous System in the Lower animals.* By SAMUEL SOLLY, Lecturer on Anatomy and Physiology in St Thomas's Hospital. With 12 plates, 12mo. pp. 492. London, 1836.

2. *The Practical Anatomy and Elementary Physiology of the Nervous System; designed for the use of Students in the Dissecting-room.* By F. LE GROS CLARK, Demonstrator of Anatomy in St Thomas's Hosp. 12mo. pp. 367. Lond. 1836.

3. *Sketch of the Comparative Anatomy of the Nervous System, with remarks on its development in the Human Embryo.* By JOHN ANDERSON, M. E. S., &c. With 3 plates. 4to. pp. 63. London. 1837.

THE recent discoveries in the Anatomy of the Nervous Sys-

tem, both of man and of the lower classes of animals, together with the numerous investigations into its functions of which the results have been laid before the world, during the last few years, may well excite in the minds of medical students in this country, a desire to know something more on these most interesting subjects than the dry detail of names and positions, which is too often prepared only for the purpose of passing an examination, and forgotten almost immediately afterwards. It has long been a reproach against the London schools, and from our own experience we conceive it not undeserved, that the physiological inferences which alone can make the study of minute anatomy truly interesting, are too often allowed to pass unnoticed; an excessive degree of attention being devoted to comparatively unimportant details. The almost simultaneous appearance, however, from the London press of three works, devoted to the elucidation of one of the most intricate departments of the science, and especially intended for the student's use, is an indication that the deficiency to which we have alluded, is now beginning to be felt, both by teachers and learners; and we trust, ere long, to see the study of physiology prosecuted in London with the same ardour which it excites in almost every other large school.

In our researches into the structure of the nervous system, we may derive peculiar assistance from the information with which comparative anatomy supplies us; since by tracing the gradual appearance and development of its different portions, as we ascend in the animal scale, we can arrive at much more correct and definite notions of their arrangement and connection in that most complicated of all organs, the human brain, than can be acquired by the examination of it alone. The comparison also of this gradual evolution with the progressive development of the same organ in the human fœtus, leads us to one of the most beautiful generalizations of modern philosophical anatomy, to which, when rightly understood, we imagine that few will be found to object. In our physiological investigations we may obtain no less important aid from the same source. The essential parts of the nervous system may thus be distinguished from those which are superadded for an express purpose; and by tracing the progressive additions to *structure*, in connection with the gradual complication of *function*, we may frequently arrive at results of a less exceptionable character than those derived from what is now commonly denominated Destructive Anatomy. Indeed, every day affords some fresh proof of the correctness of the great principle laid down by Cuvier, that the different classes of animals may be regarded as so many experiments ready prepared for us by nature.

Though the general object of the works before us is the

same, the particular department which each author has chosen, is fortunately different. The purpose of Mr Anderson is simply to give a concise view of the comparative anatomy of the nervous system, and to contrast this with its development in the human embryo, following out the plan of Tiedemann and Serres by extending it to the Invertebrata. Mr Clark's work is confined to human anatomy and physiology, being intended as a manual for the dissecting-room, a purpose for which its anatomical portion is admirably fitted. Mr Solly has aimed at a higher object, that of unravelling the intricate structure of the human brain with the aid of the clue furnished by comparative anatomy; and of presenting a summary of the latest and most important researches into its physiology. To the latter he has added much new and interesting matter derived from his own investigations; and an important anatomical discovery is announced by him to which we shall presently advert.

The structure of the nervous system of the INVERTEBRATA occupies a large portion of Mr Anderson's work, and is, on the whole, very well treated by him. We think, however, that his descriptions would be more intelligible if disembarrassed of the transcendental doctrines by which they are frequently obscured; since a sketch of these so brief as that which he has given cannot be comprehended by any who have not previously studied them. We differ from him also with regard to what may be considered the simplest form of the nervous system. Classing among the ACRITA all those animals which present no trace of nervous filaments, we think that we may pass on one side into the RADIATA, the simplest form of whose nervous system is a circle round the mouth without ganglia (as in some of the inferior ECHINODERMATA); and on the other side into the ARTICULATA, whose lowest tribes present us with a double nervous filament running along the trunk, and this also destitute of ganglia. Thus, then, we have not *one* type of a nervous system, but *two;* the *circular* type we may trace upwards through the radiated and molluscous classes, (the CYCLONEURA, and CYCLO-GANGLIATA of Grant;) the longitudinal type prevails through the helminthoid and entomoid classes, (the Diploneura of Grant.) Both these types appear to us to be represented in the brain and the spinal chord of the VERTEBRATA; and the transition is beautifully illustrated in the cerebral masses of the higher CEPHALOPODA, and the concentrated form of the nervous system in the higher INSECTA and CRUSTACEA. In the lower part of the scale, also, we have a similar well marked transition in some of the HOLOTHURIDA, which exhibit longitudinal filaments passing off from the circle which embraces the mouth. If we compare the development of this system in the great divisions of the animal kingdom which we

have enumerated, we shall perceive that it beautifully corresponds with that of their functions; the organs of nutrition being most complete in the Radiata and Mollusca, those of locomotion in the Articulata, and both being combined in the Vertebrata.

The arrangement of the Annulose classes, which Mr Anderson has adopted from Carus, has always appeared to us unnatural. Surely the CRUSTACEA are in every respect more highly organized than the Myriapoda. It is on the anatomy of the nervous system in insects that Mr Anderson's work is particularly full; and as his statements are nearly all derived from original dissections, they are of course the more valuable. Regarding the Vertebrata, we could wish the details to have been more complete, as it is by the comparison of the brain, as it appears in these classes, with that of man, that the development of the latter is to be chiefly illustrated. We are sorry to be obliged to notice one important error, for which we are at a loss to account. Mr Anderson (p. 18) speaks of the first cerebral mass of fishes, as synonymous both with the olfactory tubercles, and with the cerebral hemispheres, and quotes Serres and Tiedemann in support of his statement. Now the former author is at much pains to establish the identity of the tubercles anterior to the optic lobes, with the cerebral hemispheres; but he also describes tubercles anterior to these again (and in fish frequently separated from them by a peduncle,) as the olfactory tubercles or lobes. These tubercles or ganglia evidently exist, as Mr Solly has remarked (p. 241,) in the human brain, although usually described simply as the bulbous expansions of the nerve; and we quite agree with him in regarding the connection between these olfactory lobes and the hemispheres, as rather of the nature of a commissure than of a nervous trunk. We should be doing injustice to Mr Anderson, however, were we not to express our conviction that his work does great credit to his industry and talents; and that it is calculated to be of much service to those who wish to gain a general knowledge of the comparative anatomy of the nervous system.

We could wish to have entered more fully than we have at present the opportunity of doing, on the discussion of several interesting topics suggested by a perusal of Mr Solly's work. To some of these, we shall perhaps take another opportunity of reverting. At present, we must be satisfied with briefly noticing a few of its principal novelties, and giving a general sketch of its plan. The author has adopted the principle, in which we perfectly agree with him, that the study of comparative anatomy ought to precede, and not to follow, that of the human organism; and we are satisfied that any student who will investi-

gate the structure of the brain upon the plan which Mr Solly has laid down, will be well rewarded for his pains. "By pursuing this course, we shall be rewarded by finding that the enkephalon, this apparently most complicated organ in the human being, is but a gradual development from an extremely simple fundamental type on one uniform plan, and that the seeming complexity of the cerebro-spinal axis in man really arises from the great concentration of its parts, as opposed to their extreme diffusion in the lower orders of animals."—Preface, p. xv.

The first portion of the work is therefore devoted to an outline of the comparative anatomy of the nervous system, principally compiled from the researches of Carus, Tiedemann, Serres, Grant, Newport, Owen, &c. but interspersed with many original observations of much interest. After describing the nervous system in the Asterias, the author remarks, "This nervous system, simple as it is, forms an accurate type of the most complicated in the highest species of animated beings, containing, if I mistake not, exactly the same number of elements, *ganglia*, *commissures*, and nerves." The ganglia, consisting of cineritious neurine, he regards as centres or originators of power; the cords of medullary matter which unite them, acting simply as conductors, and being therefore analogous to the commissures of the human brain, under which head he includes the *corpus callosum*, *fornix*, and every other part into which this texture enters. This opinion, which is exactly that of Unzer, Johnstone, and Bichat, receives some probability from anatomical relations; but we apprehend that it will be found rather difficult to reconcile it with certain pathological phenomena. Mr Solly regards the *corpora olivaria* as ganglia appertaining to the sensitive portion of the pneumogastric nerve, analogous to those which exist on the respiratory nerves of insects; and considering the posterior pyramidal bodies as similar appendages to the auditory, he draws the general conclusion already advanced by Bellingeri and Sir Charles Bell, that all nerves of sensation, whether special or general, have a ganglion at their central extremities.

The description of the human brain by Mr Solly, is rendered interesting by the clearness with which its apparently complicated structure is simplified, by the comparison of its parts with those which correspond to them in the lower animals. It is creditable to the author, that he has, in the course of his investigations, adduced various anatomical facts to show that a connection subsists between the *cerebellum*, and the anterior columns of the spinal cord, by the interlacement of fibres in the *corpora restiformia*—a conclusion which was nearly approached by Gall and Rolando, and was the only link wanting to complete the

chain of Sir C. Bell's discoveries. For the anatomical particulars on this subject, we must refer to Mr Solly's work, or to his paper in the Philosophical Transactions for 1836. We may remark, however, that Messrs Mayo and Owen, who were appointed by the Royal Society to examine Mr Solly's preparations, expressed themselves fully satisfied with them; and Dr Bostock and Mr Mayo have given him full credit for the discovery in the new editions of their respective works on physiology.

After describing the hemispherical ganglia composed of cineritious neurine, from the interior of which proceed three series of conducting or medullary fibres forming the motor and sensory tracts, and the uniting commissures, the author thus concludes his account of the human brain. "From the above description, the student will also perceive that the *enkephalon* or brain in the human subject is not a large solid mass of matter, in the interior of which are cavities scooped as it were out of its substance, to be appropriately denominated ventricles, but that it really consists of nodules or collections of cineritious neurine, placed on each side of the mesial line, some of them being the appropriate ganglia of the nerves of special sensation; others being the motory and sensory ganglia."—Further on he adds, "Instead of regarding the fissures of separation between its different portions as forming ventricles or cavities, the student must direct his attention to the ganglia which bound the fissure, and the structures called commissures, which, connecting them together, cross the fissure, and necessarily alter its character in different points, masking it, it is true, but not at any place changing the fissure into a true bag or circumscribed cavity."

In these views, there is certainly not much novelty, nor does Mr Solly lay claim to any; but we apprehend that he has the merit of presenting them to the student, in a form so intelligible as to enable him to comprehend them upon his first entrance on the study of the anatomy of the brain, instead of being obliged to acquire them by unlearning what the old method had impressed upon his memory.

After an account of the cerebral nerves, (enumerated according to the order of Soemmering,) which contains many facts of much interest to the physiologist, especially regarding the structure of the optic commissure, the author proceeds to describe the development of the fœtal brain, chiefly upon the authority of Tiedemann and Serres, pointing out the analogy between its successive stages, and the corresponding forms existing permanently in the lower animals. The chapter on physiology, which follows, is chiefly occupied with a detail of the experiments of Flourens and Bouillaud, which is introduced as a supplement to the physiological inferences connected with anatomical structure, which are contained in the former part of the work. This

detail might perhaps have been much abbreviated without disadvantage, as might also the last chapter, entitled Physiological inferences from Pathological facts; it appears to us that, in a work of this kind, designed especially for the student's use, the general results of experiments and cases should be presented to the reader, rather than those minutiæ, for which any one who is entering more fully into the investigation would refer to the original sources.

In concluding our notice of Mr Solly's work, it affords us great pleasure to be able to recommend it most unreservedly not only to our younger friends, for whose use it is especially designed, but to all those who have not made themselves acquainted with the recent improvements in the mode of studying the anatomy of the brain, and who wish to complete their knowledge of the subject up to the present time.

We should be doing injustice to the author, were we not also to notice the beautiful delineations with which the book is illustrated, many of which are the original products of his own pencil. We hope that Mr Solly will persevere in the career on which he has entered with such fair promise; and we doubt not that, in so extensive a field, he will prove no unsuccessful labourer.

Of Mr Clark's manual, the anatomical portion is very well adapted to the purpose at which the author has aimed. The descriptions are given with great clearness and accuracy, and show that the author has not only been anxious to describe the parts as they appear in their just anatomical relations, as ascertained by repeated dissection, but has availed himself of all the assistance which the researches of the ablest neurographical authorities have furnished.

The work consists of four parts. The first contains a short but clear exposition of the anatomical relations, structure, and constitution of the brain and spinal chord. In the second part the author takes a general view of the physiology of the nervous system. The third part is devoted to the anatomy of the cerebro-spinal nerves, and here Mr Clark gives of the origin, course, ramifications, and distributions of these important chords, an instructive view, which is neither so minute as to be tedious, nor so general as to be unsatisfactory, but which observes a judicious medium between the two extremes. One circumstance only we regret to observe. Mr Clark seems to prefer the old enumeration of Vieussens and Winslow, to the recent, and, as we esteem it, the more accurate one of Soemmering. All this is matter of opinion, and we are perfectly aware of the evils of innovation. But Mr Clark, we think, would render his book more useful to the student than it at present is, if he would adopt entirely the

enumeration and perhaps the nomenclature of this learned anatomist.

In the fourth part, devoted to the sympathetic system, the author gives a view of the anatomical position and relations of the different ganglia, and their nervous branches—of which that system is composed.

Hitherto we have spoken only of the merits of the work of Mr Clark as an anatomical production. We have now to view it in its physiological character.

Though various physiological remarks illustrative of the functions and influence of individual nerves, their branches, or their communications, are interspersed through the whole treatise, and are particularly so in the fourth part, on the sympathetic or gangliar system, it is chiefly in the second part of his work that Mr Clark proceeds expressly to illustrate the nature of the properties and functions of the nervous system, and furnish, if possible, a view of the present state of knowledge in that department. Now we are aware that there is scarcely any task more difficult in the whole compass of medical literature; and we can perceive that Mr Clark has felt the difficulties very sensibly. With the desire to give those views which he conceives were either new, or explained the phenomena most satisfactorily, he arranges his observations under the three heads of sensation, muscular action, and assimilation,—the latter including the calorific process of the animal body.

Passing quickly over the phenomena and varieties of the first of these functions, Mr Clark treats at greater length of the phenomena of muscular action, and the laws by which its various forms are regulated. In this portion of his undertaking, Mr Clark has availed himself largely of the hypothesis of the nervous circle, and reflex action of Sir Charles Bell, and that of the reflex function and the excito-motory actions of Dr Marshall Hall. As the views of these physiologists occupied not long ago a considerable proportion of our attention, it is unnecessary on the present occasion to revert to them. Mr Clark, however, will forgive us if we suggest to him, the question, whether the doctrines of the latter author are so firmly established, or so generally admitted as to entitle them to be introduced in a work intended to give to students a view of the structure and functions of the nervous system. The sketch given in the second part of the work of Mr Clark must be regarded as a view of the doctrines peculiar to Dr Marshall Hall, on the nature of the laws which regulate the phenomena and actions of the nervous system; and every one must admit, that Mr Clark has taken great pains to explain these doctrines in a plain and perspicuous manner, so that the physiological reader who desires to understand the doctrines of Dr

Marshall Hall could scarcely apply to a better source than the present volume. We fear, however, that Mr Clark may impair the value of his book as a guide to the student, who must not be taught exclusively any single doctrine, but should be instructed in all, and be taught to choose the best.

In the third division, on the sympathetic actions which have their source in the ganglia, though it is pervaded by the same hypothesis of the excito-motory system, Mr Clark presents to the student a useful and instructive view of the nature of these actions, their mutual relations, and the character of their connection with the nervous system; and a summary view of the whole is given in a short appendix to the section.

Upon the whole, this work of Mr Clark, though not faultless, must be allowed to be a production creditable to the author, and useful to the young neurologist. It is evident that the author has been at great pains to give the student a plain, consistent, and intelligible view of the anatomy and physiology of a most difficult and complicated part of the animal body.

ART. V.—*The Principles of Surgery.* By JAMES SYME, F. R. S. E. Professor of Clinical Surgery in the University of Edinburgh. 2d edition, Edinburgh, 1837, 8vo. pp. 460.

OF the first part of the first edition of this work an account is given in the thirty-seventh volume of this Journal. From the notice there given, which embraces the contents of the first fourteen chapters, some idea may be formed of the nature of the work, and of the manner in which the different subjects are treated. Several circumstances, and especially the numerous claims from other publications, prevented us from completing the account then given by a notice of the contents of the second part of the work of Mr Syme. We willingly, therefore, embrace the present opportunity, afforded by the appearance of a new edition, to inform the practitioners and students of surgery of the general merits of this treatise, and its claims on their attention.

The analysis of the contents of the work we resume at the commencement of the fifteenth chapter, by observing that the subsequent part of the treatise is devoted to the history of the surgical accidents, injuries and diseases incident to the different regions and cavities of the body, and to the operations requisite for their alleviation or cure.

Thus in the fifteenth chapter Mr Syme treats of the surgery of the throat, under the several heads of wounds, either intentional or accidental, the operations of tracheotomy and laryn-

gotomy, the extraction of foreign bodies from the pharynx and œsophagus, either by the forceps, or after œsophagotomy, the history and pathology of stricture of the œsophagus and its appropriate treatment, and the history of bronchocele and its treatment.

In the sixteenth chapter, the reader finds an instructive account of the various consequences of penetrating wounds of the chest, and a judicious view of the most effectual method of treatment, so as to conduct the patient safely through the different stages and insure ultimate recovery. This is followed by a short account of the most improved mode of performing the operation of *paracentesis thoracis*, and the subsequent treatment. Mr Syme next treats of the diseases incident to the female breast under the following four divisions; 1*st*, those distinguished by excitement of its nutritive or sensitive action causing simple enlargement or hypertrophy, induration and pain,—including the painful states taking place at puberty, during the menstrual period, and in pregnancy, the chronic enlargement of middle-aged females, and the irritable breast or *neuralgia mammae*; 2*d*, those in which purulent fluid is collected, as milk abscess and chronic abscess; 3*d*, those characterized by a morbid growth, limited, however, to the texture in which it originates, as Vascular Sarcoma, Fibrous Sarcoma, and Cystic Tumours; and 4*thly*, those in which the growth is malignant in character, or involves other tissues, and affects the constitution, as the carcinomatous, and medullary or cerebriform structures. Of these several forms of disease Mr Syme gives accurate and instructive descriptions, which the student will find it his interest to peruse with attention and care. After attentive perusal of these observations we scarcely recognize any thing to which objection could reasonably be made. In the account of the irritable breast, indeed, Mr Syme represents the disease to be generally met with in middle-aged women. Perhaps it might have been desirable to specify more particularly the usual ages between which the disease is chiefly observed to occur. Several instances we have seen take place in females below 30; and in general we think, so far as our own opportunities have extended, the disease has occurred in females below this age. On this point, however, we willingly defer to the statements of a surgeon whose means of observation have been so extensive as those of the author.

The account of Carcinomatous *Sarcoma*, though short, is very correctly and clearly given; and the advice regarding the circumstances indicating or contra-indicating extirpation of the morbid part is judicious. On this important subject the following passage may be given as a specimen of the manner in which the author treats his subject, and establishes his therapeutic measures.

"Few questions in surgery have occasioned more discussion than that which has been, and still is, agitated in regard to the propriety of operating. It is admitted that relapse frequently occurs after excision has been performed; but much difference of opinion exists as to the risk of its doing so, and the consequent advantage of the operation. It would appear, on the whole, that the prospect of permanent recovery is not so hopeless as it has been represented, provided the operation be performed only in proper cases, and in an efficient manner. Similar diseases are removed from other parts of the body, as the lip, with almost invariable success; but no surgeon thinks of cutting out a cancer of the lip if there be an affection of the glands under the chin; and, in operating, he carries his knife wide of the morbid part, and leaves a perfectly sound surface for healing. In excision of the mamma, on the contrary, a diseased state of the axillary glands is often either totally disregarded, or considered no obstacle to the operation, provided they admit of removal; and the surgeon frequently cuts close to the surface, or perhaps at some points through the substance of the tumour. It need not, therefore, excite any surprise, or lead to distrust in the advantage of the operation, to find that the disease frequently returns. The affection of the glands should be regarded as an objection to the operation, not merely from presenting an obstacle in the way of its performance, but rather from affording evidence of a strong tendency in the constitution of the patient to take up the diseased action.

"The different cases of carcinomatous disease may be divided into, 1. those where an operation is altogether improper; 2. those where it may be performed but with a very unfavourable prognosis; and, 3. those where it has a chance of proving permanently successful. The first class will include cases in which there are enlarged glands, so seated or connected that they cannot be removed,—or where the skin is so extensively diseased that all the morbid portion of it cannot be taken away,—or, lastly, where there is positive evidence of some other part of the body, as the stomach or uterus, being similarly affected. The second class comprehends those cases in which the glands are tainted, but within reach,—or in which the disease is in the state of open cancer,—or the progress of the morbid process rapid,—or the patient's appearance very unhealthy. And to the third class may be referred those in which the disease has advanced slowly,—feels circumscribed,—is not attended with enlargement of the glands, and exists in a person of tolerably healthy appearance. Should the complaint have been distinctly the consequence of local irritation, or the patient be of an age at which the predisposition is generally not very strong, as under forty or above sixty, the prognosis will be still more favourable. In very advanced periods of life, as beyond seventy, the diseased action is so slow, and the chance of troublesome symptoms consequently so small, that the pain and risk of an operation, however inconsiderable, would in general not be warranted."—Pp. 255, 256.

In the seventeenth chapter, on the Surgery of the Abdomen, Mr Syme treats successively of wounds of that region and their consequences, puncture of the intestines, hemorrhage, *peritonitis* and *enteritis*, and the requisite treatment; *paracentesis abdominis;* hernia, with a short view of its anatomy, and a more detailed account of its varieties and operations, and the occasional incidental effects.

In the eighteenth chapter, devoted to the Surgery of the Pelvis, we find discussed the subjects of imperforate anus, stricture of the *rectum*, spasmodic contraction of the *sphincter ani*, foreign bodies within the rectum, hemorrhoids, *prolapsus ani*, *fistula in ano*, retention of urine, urethral stricture, diseases of the prostate gland, extravasation of urine, and puncture of the bladder, urinary concretions, lithotrity, lithotripsy, and lithotomy, retention of urine, and urinary *calculi* in females, incontinence of urine, irritability of the bladder, catarrh of the bladder, and *hæmaturia*. Of this long and important chapter it is impossible to give, within the compass of a notice like the present, any analytical sketch which might do it justice. We must say, nevertheless, that in the section on the two forms of retention of urine, stricture, and retention from blows on the perinæum, the reader will find much information, which could only have been acquired by extensive experience in the management of these different states. The account of the different forms of urinary *calculi*, and the symptoms to which they give rise, is given with great neatness and perspicuity, and comprises all the most recent information; and we recommend the account of the different modes of attempting the alleviation of the symptoms of urinary *calculi*, and of effecting the removal of these bodies, as at once the clearest, the most complete, and the most methodical in any work accessible to the English reader.

In the nineteenth chapter, on the diseases of the Genital Organs, and their appropriate treatment, remedial or operative, the description of the diseases of the *uterus* and ovaries deserves attention for its correctness, and the soundness and judicious character of the therapeutic measures recommended.

In the twentieth chapter, on the Injuries and Surgical diseases of the Brain, Spinal Marrow and Nerves, Mr Syme gives a correct view of the present state of knowledge on the treatment and operations required, and on the admissibility or inadmissibility of operation under particular circumstances.

Of the twenty-first chapter, on the Surgical Diseases of the Skin, the most interesting part is that on chronic cutaneous diseases, diseases of the fingers and toes, and especially on whitloe and the treatment adapted to each.

To these succeed a short general view of the surgical diseases of the eye and its appendages, in the twenty-second chapter;

an account of the surgical diseases of the mouth and its parts in the twenty-third chapter; and of those of the nose and ear in the twenty-fourth and twenty-fifth chapters.

In closing this account of the contents of this treatise, it would be improper to omit to observe, in addition to what was formerly said, that, by revision, rectification, and condensation, the whole work is much improved, and rendered particularly useful to the student and practitioner. In its present form it is distinguished by two circumstances which strongly recommend it to attention. In the first place, it gives, a just view of the state of surgical opinion and practice in the different branches of the art; and it is no small merit to do so within moderate limits, and in a compass so short as to suit the time of the student. It is further the peculiar merit of this treatise, that it contains descriptions of surgical diseases, which, though short, are clear, pointed, and instructive, divested of all extraneous matter, and well calculated to initiate the young surgeon in the important duty of observation. In this respect Mr Syme has contributed much to raise the character, and extend the boundaries of surgical science. The mind of the reader is directed not to operation solely and principally, as is too often done. He is taught to feel that he has a nobler and higher object,—the correct understanding of the distinctive nature of surgical diseases and injuries, the successful management of each by appropriate remedial measures, and the resorting to operation only when operation is requisite and admissible.

Art. VI.—*A Practical Treatise on Midwifery, containing the results of sixteen thousand six hundred and fifty-four Births, occurring in the Dublin Lying-in Hospital, during a period of seven years, commencing November* 1826. By Robert Collins, M. D., late Master of the Institution. 8vo. London, 1835. Pp. x. and 566.

This is a work of no ordinary interest, whether we consider the opportunities of the author, or the manner in which he has turned them to account. Comparatively speaking, few individuals have the same means of investigating some of the more important questions of midwifery as Dr Collins has had, and those who are so fortunate seldom avail themselves of them to the full extent. Observations made on so large a scale, within a limited period, are particularly valuable, inasmuch as they exhibit to us a more accurate view of the subject, than the same amount could have done, if spread over a greater number of years.

The work before us is really what it professes to be,—a prac-

tical treatise, and its value is still farther enhanced by a series of excellent tables appended to each subdivision, which exhibit at one view the result of the author's experience on the particular subject. Entertaining, then, as we do, a high opinion of the merits of the volume, we consider it an act of justice both to the author and to our readers to give a short notice of its contents.

The treatise is divided into four great parts, the first of which is devoted to natural, tedious, and difficult labours; the second to preternatural; the third to complex; and the fourth to general observations on patients dying in the hospital, on puerperal fever, on still-born children, and on children dying in the hospital.

Passing over Dr Collins's judicious remarks on the management of natural labours, we come to those on tedious and difficult labours. After stating the usual causes of these, and quoting with approbation the opinion of Dr Joseph Clarke, that, in the present day, "the powers of the constitution fail but seldom in expelling the fœtus, where there is no material defect in the formation of the pelvis, he proceeds to discuss the use of instruments. The symptoms and previous history of the case, and not the length of the labour, should guide us as to the propriety of interfering. When the patient has had severe labours before, or given birth to many children, she should be permitted to remain in labour less time than if circumstances were different. So long, however, as the pulse remains good, the bowels and bladder act well, the soft parts are free from pressure, and the uterus continues to act, while the patient complains of no pain in the abdomen on pressure, nor of local distress, and the child is alive, Dr Collins is of opinion that "no attempt should be made to deliver with instruments, and that he who does so, wantonly exposes both mother and child to danger. A prudent use of instruments in the practice of midwifery is of great importance in the practice of midwifery, but the necessity alone of freeing our patient from impending or present danger should induce us to resort to them. * * * In tedious labours, where the mouth of the womb is fully dilated, the soft parts relaxed, and the head so low in the pelvis as to bring the ear within reach of the finger, if there be a necessity for interference, the forceps may be used with advantage; but ample experience has most fully proved to me, that, under these circumstances, uterine action fails but seldom in expelling the child; and that it is only in cases, as above described, where the *safety* of the patient *requires assistance* that we are justified in using this instrument."—Pp. 9 and 10.

The following remarks will show how seldom the forceps need be used. The observations from which they are deduced were made, it must be remarked, in a lying-in hospital, where the cases are by no means of the most favourable description.

"In 16,414 deliveries in the hospital, we met with but fourteen cases, answering this description, in eleven of which the forceps was used, and in three the lever. In the other instances when the forceps was applied, the labours were complex. * * * The forceps was used during my mastership twenty-four times, and the lever three times; total twenty-seven; making the average about one in 608 deliveries. According to this calculation, most physicians in private practice would require to use them but seldom; as, supposing an individual to attend 4000 cases in the course of his life, which is a greater number than falls to the lot of most men, the forceps or lever would be necessary in little more than *six* cases." —Pp. 10 and 11.

We trust that these statements will have due weight with those teachers and practitioners of midwifery who are in the habit of boasting of the number of times they have used the forceps. They may rest assured that their merit is in an inverse ratio to the proportion of such cases occurring in their practice. The boast of having often used the forceps, arises in many cases from an opinion that the application of this instrument is a feat of no common dexterity. Such, however, is not the case, and we agree fully with Dr Collins, when he states that delivery by this means, in the only circumstances in which the measure is admissible, namely, when the *os uteri* is fully dilated, the soft parts relaxed, the head resting on the perinæum or nearly so, and the pelvis of sufficient size to permit the practitioner to reach the ear with the finger, is an operation so simple, that any individual of moderate experience, and a competent knowledge of the mechanism of labour, may readily perform it. To use the instrument in other circumstances is most hazardous to the patient.

The doctrine inculcated by Denman, Burns, and Merriman, and others, that the forceps should not be applied when the head is closely locked in the pelvis, and the ear cannot be reached by the finger, except by violence, is thus supported by Dr Collins. This state of matters occurs "in consequence of disproportion existing between the head and pelvis, either owing to the former being unusually large, or the latter under size, in most instances measuring little more than three inches from pubes to sacrum, and in others less than this. When we consider that the blades of the *smallest* sized forceps used in Britain, even when *completely closed*, measure from $3\frac{1}{8}$ to $3\frac{1}{2}$, it is clear that were the bones of the pelvis denuded of their *soft parts*, there would not be space to admit of their application. The French forceps measures, when closed, from blade to blade, on the upper side $2\frac{1}{2}$ inches, and are about one-eighth wider on the opposite side; meeting at the point of the blades to within one eighth of an inch. Were we even to overlook altogether the safety of the mother, when the child's head, which measures $13\frac{1}{2}$, $14\frac{1}{2}$ or 15 inches in circumfe-

rence, is so compressed as it must be when the instrument is closed, there can be scarcely a hope of life. Of course, where the pelvis is *roomy*, this compression of the head so as to *close* the forceps, is unnecessary, and in such cases the child is uninjured. How is it possible with the forceps to drag a child through a pelvis, where there is not space, except by *force*, to introduce (as is commonly said) a straw, or where the smallest flexible catheter cannot, in some instances, be passed into the bladder."—Pp. 12, 13.

After stating briefly the melancholy results of the attempt in such cases, and corroborating his opinion by quotations from Denman, Burns, and Merriman, he gives the following account of the cases in which the forceps was used.

" Four of the 24 women delivered in the hospital with the forceps died—not, however, from any injury connected with the actual delivery. Eight of the children were still born. Sixteen of the 24 were males. Eighteen of the 24 were first children. The following table shows the duration of labour in each; thus, 1 woman was 4 hours, and so on. In one case of hemorrhage, the patient was delivered without delay, and in the other it was the second child of a twin birth.

Hours in labour,	4	5	6	8	10	11	12	16	18	24	28	32	35	36	40	48	50
Number of women,	1	1	1	1	1	1	1	2	1	1	2	1	1	2	1	3	1"

Dr Collins next gives his views respecting the circumstances in which the crotchet ought to be used, and after pointing out the advantage of the stethoscope in aiding the practitioner as to his decision regarding the life or death of the fœtus, concludes the section with some valuable tables and abstracts, a portion of which we shall transfer to our pages.

" I shall now give a concise statement of the duration of labour in the 16,414 women delivered, and also of the result to the mother. The following table shows the duration of labour; thus 261 women were one quarter of an hour and so on. In 564 cases the duration cannot here be stated, many having been delivered immediately on admission, others on their way to hospital, and some were not noted:—

Hours in labour,	¼	½	1	2	3	4	5	6	7
No. of women,	161	309	3067	3513	2487	1920	923	1032	333

Hours in labour,	8	9	10	11	12	13	14	15	16	17	18
No. of women,	553	156	209	63	358	38	59	32	41	29	63

Hours in labour,	19	20	21	22	23	24	25	26	27	28	29	30
No. of women,	10	42	8	5	9	166	2	12	6	18	7	40

Hours in labour,	32	33	34	35	36	38	40	41	42	43	44	48
No. of women,	6	6	2	3	32	3	21	2	3	2	1	47

Hours in labour,	50	51	53	56	57	58	59	60	62	63
No. of women.	12	2	2	4	1	2	1	8	1	1

Hours in labour,	65	66	70	72	74	80	84	90
No. of women,	3	1	6	3	1	1	1	1

"Thus, of the 15,850 cases noted, 15,084 were delivered within 12 hours from the commencement of labour; 15,585 within 24 hours; 15,671 within 30; and 15,720 within 36 hours; leaving 130 above that period.

"Of the 16,414 women delivered, 4,969 were first pregnancies, of which 72 were twin births. These 16,414 women gave birth to 16,664 children, including twins.

"In 79 of the 16,654, delivery was effected by lessening the head (on account of the extreme difficulty in the labour, or where the child was dead and interference desirable, owing to the state of the mother) when, after the most patient trial, the impracticability of the labour being terminated in safety, by any other means, was clearly proved to us. In six of the 79, delivery with the forceps was attempted, but no force consistent with safety could in this way accomplish it. Fifteen of the 79 women delivered by the crotchet in difficult labour died."—Pp. 21, 22, 23.

Their deaths are thus accounted for;—one died from stricture of the intestine, and effusion into the thorax; one from the effects of abdominal inflammation *previous* to labour; three from the effects of labour *previous* to admission; one from puerperal fever then prevalent in the hospital; one was admitted labouring under typhous fever; and five died from the effects of inflammation and hemorrhage, or injury produced by pressure. Of these five, two suffered from hemorrhage, in one previous, and in the other subsequent to the expulsion of the placenta. "In both it was necessary *to pass the hand into the uterus.* One of the two had been force delivered in a former labour, and *all* her children were still born. These circumstances added considerably to the bad effects arising from the difficulty experienced in the present labour, and must have contributed much to the fatal termination. Of the three who died of the effects of labour, previous to admission, one was *three* days in labour; the second four, and the third five days. Of the *nine* remaining cases, one was 26 hours in labour, viz. the woman admitted in typhous fever; one 35; one 40; one 48; one 56; one 59; one 64; and two, 72 hours." Of the three deaths not accounted for above, one seems to have been produced by exhaustion consequent on disease and poverty; one from erosion and gangrene of the vagina, and neck of the bladder; and another from exhaustion consequent upon three days labour, which she had endured previously to her admission. "Fourteen of the fifteen women were delivered of first children, all males; the other was a fourth child, and a female. This was one of the two hemorrhage cases. Seven of the fifteen were born putrid; three of the seven were the children of the women who had been a length of time in labour before admission. In none of the fifteen was death caused by any injury sustained in the actual delivery."

Among the patients who were more than 20 hours in labour 42 deaths occurred, or one in nearly 391. Of these, 3 died of typhous fever; 9 of puerperal fever; 1 of stricture of the intestine with effusion into the thorax; 3 where the placenta was retained; 2 of convulsions; 1 of abdominal inflammation previous to labour; 9 of rupture of the uterus; 1 of inflammation of the intestines with pus in the uterine sinuses; 2 of anomalous disease; 1 where labour was not severe; 1 of diffuse cellular inflammation; 6 of inflammation, &c. subsequent to difficult labour; one of ulceration and sloughing of the vagina; 1 of disease of the lungs and hemorrhage; and 1 of abdominal abscess. "In addition to the 42 deaths here noticed, 6 women died, who had been reported several days in labour previous to admission; of course the duration of their labour could not be stated in the general table."

The following table exhibits the ages of each of the 16,414 women delivered:—

Age,	15	16	17	18	19	20	21	22	23	24	25
No. of Women,	3	19	70	237	433	926	682	1142	1023	1089	1174
Age,	26	27	28	29	30	31	32	33	34	35	36
No. of Women,	1295	983	1340	517	2346	242	467	378	384	396	379
Age,	37	38	39	40	41	42	43	44	45	46	47	50	53
No. of Women,	153	217	65	326	15	21	18	17	11	5	6	5	1

The frequency with which instruments are used varies much in the practice of different individuals. The following table gives the average proportion of instrumental deliveries occurring to different practitioners.

Dresden,	Dr Carus,	1 in	13
Giessen,	Dr Retgen,	1	9
Berlin,	Dr Kluge,	1	15
Cologne,	Drs Minden and Merrem,	1	12
Breslau,	Professor Andree,	1	35
Heidelberg,	Naegelé,	1	28
Magdeburg,	Dr Voigtel,	1	5
Breslau,	Dr Küstner	1	36
Marburg,	Dr Caspar Siebold,	1	9
Vienna,	Dr Boer,	1	96
Paris,	Madame Boivin,	1	183
London,	Dr Merriman in private practice,	1	78
London,	Dr Bland, Westminster General Dispensary.	1	158
London,	Dr A. B. Granville, (same institution,)	1	80
Dublin,	Drs Cusack and Maunsell, Wellesley Dispensary,	1	34
Dublin,	Dr Beatty, New Lying in Hospital,	1	99
Dublin Lying-in Hospital,	Dr Joseph Clarke,	1	162
Do	Do Dr Collins,	1	114

Dr Collins next furnishes us with the result of his experience of presentations of the face, and with the face towards the pubes. It would appear that such presentations are not so frequent as they have been represented, and that where the pelvis

is well formed, though in many cases the labour may be more tedious, and though the child frequently perishes, the safety of the mother is not compromised. Of the 33 cases in which the face of the child presented, 4 were still-born, 1 being an acephalous monster. All were delivered without assistance. Of 12 cases in which the head presented with the face to the pubes, six of the children were still born. This, however, does not give the true proportion, as in four of the cases death might be accounted for on other grounds, one having the cord twisted three times round the neck, in two the pelvis of the mother being defective, and in one both the funis and the hand descending. The following gives the general result.

" Of the 45 children presenting as described, 35 were born alive; 26 of the 45 were males; of the 10 still-born, 6 were males; one of the 45 women died, viz. the deformed patient. * * In 35 of the 45, the labour was terminated within eight hours."—P. 34.

Dr Collins is disposed to think, that, owing to the rapidity of the delivery, some case of face presentation were overlooked, and therefore not noted.

Dr Collins is of opinion, that all attempts to alter the position of the head in the early stages of labour, when presenting in either of the ways referred to above, are injudicious. The labour should be treated as one perfectly natural.

It would appear from some tables given, that such cases occur most frequently in the first pregnancy, and diminish in every subsequent one, and that 30 is most frequently the age of the mother.

The division of the work devoted to preternatural labours comprehends presentations of the breech, feet, shoulder, and arm.

In his remarks on the management of breech presentations, the author generally agrees with Dr Burns, and the most judicious writers on midwifery. In only one case out of between 24,000 and 25,000, has he found it necessary to make use of any instrument.

In adverting to the difficulty of distinguishing such presentations at an early period of the labour, he states, that " he has not unfrequently diagnosed the presenting of the breech or inferior extremity, before there was any appearance of labour, from the situation in which the fœtal heart's action was audible; in such cases, it will be most distinctly heard near the umbilicus of the mother. A knowledge of this fact may assist us where we are doubtful as to the presenting part: but until the *os uteri* is considerably dilated, little practical benefit, further than putting us on our guard, can be derived from it."

The following is a summary of the facts connected with the breech presentations occurring at the hospital. Of 409 preternatural presentations, not including those occurring in twin cases, 242 were breech. "Of these 242 children, 73 were still-born, of which 42 were putrid; 40 of the 242 were premature births, 28 of which were still-born, 14 of the 28 were born at the 8th month, 12 at the 7th, 1 at the 6th, and 1 at the 5th; 26 of the 28 were putrid. 12 of the 40 premature children were born alive, viz. 2 at the 6th month, 7 at the 7th, and 3 at the 8th month; 7 of the 12 were males. Of the 28 still-born premature children, 13 were males. Of the total number of still-born children, 38 were males. 169 of the 242 children were born alive, 96 of which were males. Of the total number of breech presentations, 134 were males.

Some women appear to be more predisposed than others to preternatural presentations, and Dr Collins mentions one who had given birth to nine children, and in all whose labours this had occurred.

During Dr Collins's mastership, 127 cases of presentation of the feet occurred in the hospital, exclusive of those met with in twin cases. "Sixty-two of the 127 children were still born, 41 of which were putrid. Thirty-six of the 127 were premature, viz. 4 at the fifth month, 8 at the sixth, 17 at the seventh, and 7 at the eighth. Twenty-eight of the premature children were putrid; 4 were dead but not putrid; and 4 were born alive. Fourteen of the premature children were males, 3 of which were born alive. Of the 127 children, 61 were males, of which 25 were still-born, 15 of which 25 were putrid. Sixty-five of the 127 children were born alive, 36 of which were males."

Dr Collins conceives that the great mortality in footling cases is comparatively little owing to any difficulty experienced in the actual delivery of the child, but to causes operating previously to labour. Thus of the 62 children still-born, where the feet presented, 41 were in a putrid state, and of these 32 were premature. In no instance was putridity occasioned by the length of the labour. "Of the 21 remaining cases, 3 were complicated either with convulsions or hemorrhage; 4 had the funis prolapsed, causing death; in 4 the children were premature but not putrid; and in 1 the child was lost by remissness on the part of the pupil not sending for assistance in proper time. Thus in 57 of the 62 children still-born, death did not follow on any difficulty encountered in the delivery, owing to the preternatural presentation." In the remaining five cases, the labour was short and without any difficult complication.

The funis more frequently prolapsed in footling cases than in any others. In the 127 cases noticed above, it occurred nine

times, or about once in fourteen, whereas the average in all the births in the hospital was only one in 171½.

Dr Collins next considers presentations of the shoulder and arm. In such cases there are only two modes of delivery to be considered, the one turning, the other perforating the thorax, and bringing down the breech by the crotchet. Spontaneous evolution should not be trusted to, *first*, because there is no hope of saving the child, and if the child is to perish it would be better to open the thorax, and save the mother the additional suffering and risk; and, *secondly*, because its occurrence is so little to be expected, that, in a practical point of view, it may be looked upon as almost fanciful. "No instance of it," says Dr Collins, "occurred in the hospital during my assistant or mastership, nor did one take place during the residence of Dr Clarke, *one excepted*, of which the Doctor states, he was not certain, as it merely depended on the report of a midwife, which is at best but doubtful authority. In these different periods there were 34,576 women delivered."

To suspend the action of the uterus, it is usual to exhibit a large dose of laudanum, besides, in certain circumstances, abstracting blood. Dr Collins, after premising blood-letting or not, as the symptoms may require, prefers giving the patient every half hour a table-spoonful of mixture, consisting of four grains of emetic tartar, and thirty minims of acetate of opium in six ounces of water.

The author, after giving some judicious directions for the performance of the operation, recommends that it should not be attempted in cases where the waters have been long discharged, the uterine action powerful, and the child's body fixed low and firmly impacted into the pelvis for several hours. Turning would then be highly dangerous, and, besides, the pressure has already destroyed the child. In such cases he recommends opening the thorax, and condemns the practice of separating the head.

Forty presentations of the shoulder and arm were met with in the hospital. Of 33 of the children turned, 20 were born alive. In 6 the thorax was broken down, and in 1 the arm descended with the breech. This was a six months' child, and putrid. "20 of the 40 children," continues Dr Collins, "were still-born, 6 of which were putrid, 3 of the 40 were premature, viz. 1 at the sixth and 2 at the eighth month, 23 of the 40 children were males. In 3 of the 33 turned, the head had to be lessened before delivery could be accomplished. In 3 of the 40 cases the uterus was ruptured; 1 was brought to hospital in this state; in 1 the pelvis measured but 2½ inches from pubes to sacrum; and in the third, the injury occurred in the turning. * * Four of the 40 cases were brought to hospital after the presentation had been discovered, 7 of the 40 were twin

children; 4 of the women died; 1 of inflammation of the brain; 1 of puerperal fever, (the edge of the placenta was near the mouth of the womb;) and 2 of ruptured uterus, in 1 of which the pelvis was much under size, the thorax was lessened; and in the other the child had been turned. Of the 20 still-born children 6 had the thorax lessened; 3 had the head perforated after having been turned, the pelvis being under size; 3 were putrid; 2 had the arm down on admission; with 1 the waters were discharged on admission; with 1 the waters had been forty hours discharged, and with 1 seven hours; the child being also very large; with 1 there was much difficulty in getting away the head, the bones of which were much compressed; with 1 the placenta presented, and with 1 there was neither delay nor difficulty. This short abstract is given to show, that, in the great majority of these cases, death had taken place previous to any attempt to deliver, and that in none was the actual delivery the cause of death, where disproportion did not exist."—Pp. 73, 74.

Dr Collins next presents us with a brief notice of each of these cases, and concludes in his usual way, by giving a tabular view of the circumstances connected with each case.

The next division, entitled Complex Labours, comprehends an account of labours complicated with hemorrhage; with retention of the placenta; with convulsions; with rupture of the uterus or vagina; with two or more children; with prolapsus of the umbilical cord; with sloughing of the urethra or neck of the bladder.

Dr Collins follows Mr Rigby in dividing uterine hemorrhage occurring before delivery into unavoidable and accidental,—the former resulting from the separation of the placenta, when placed directly over, or with its edge at the *os uteri*,—and the latter from separation of the placenta from any other part of the womb. During his mastership, 24 cases of uterine hemorrhage occurred before the birth of the child, 11 being unavoidable, and 13 accidental. It is extremely rare to meet with total separation of the placenta. Dr Clarke told the author that he met with but one case, and that the patient died before he reached the house. One extraordinary case is given, to which we shall advert immediately, where the placenta was expelled a considerable time before the birth of the child, and previous to the patient's admission into the hospital. The danger is to be estimated, not by the quantity of blood discharged, but by the effects of its loss on the system.

Dr Collins makes some excellent remarks on the management of such cases, for which we must refer to the work itself, contenting ourselves with quoting the results of the eleven cases of unavoidable hemorrhage met with in the hospital. In 8 the

children presented naturally, 4 of which were turned; "1 was delivered by the natural efforts; 1 with the forceps, and in the other 2 the head was lessened. Of the remaining three, 2 presented with the feet, and 1 with the breech. Six of the children were born alive. Of the 5 still-born, 2 were putrid. Two of the women, where the children were turned, died. All the rest recovered.

Eight of these cases are given at length, two of which only we shall quote for their singularity.

"G. J., at her full time; was admitted in a state of extreme debility; her pulse was so weak and frequent as not to be counted. The foot was found in the vagina, so putrid, that the skin peeled off on the slightest touch. The discharge was fœtid. Stimulants and cordials were freely given, and the child brought away without difficulty. The uterus remaining enlarged and relaxed, the hand was passed to remove the placenta, when there was none to be discovered, nor was there any hemorrhage. The membranes had ruptured and the waters been discharged, a fortnight previous to admission, from which time, until the evening before she was brought to the hospital, she had more or less hemorrhage. It was now ascertained that the placenta had been expelled the evening before her admission, and separated by the midwife in attendance. She had been twice visited by a medical practitioner, who *bled* her, and gave *purgatives*. She left the hospital well on the 13th day."

"E. D., aged 38, was admitted to be delivered of her fifth child. About ten days previous she had a considerable discharge of blood from the uterus, which entirely disappeared, and did not return until a short time before admission, when it was trifling; there was no pain, and no examination was made for seven hours after, when the placenta, on introducing the finger, was found almost entirely separated, and in the vagina, above which the foot could be felt, it was brought down without farther loss. When the placenta was examined, one-half of it was found much altered in structure, containing large and whitish masses resembling fat, or lymph highly organized. The child was putrid about the seventh month, the circulation between it and the placenta must have been destroyed for many days."—Pp. 103, 4, 5.

In his remarks on accidental hemorrhage, Dr Collins animadverts very freely on Dr Burns's recommendation to dilate the *os uteri* and deliver. His own doctrine is, when the discharge is not profuse, and the patient's strength not much reduced, to endeavour to arrest it by the means commonly recommended, and wait for nature's assistance in expelling the child. If, however, this be not effected within a reasonable time, his rule is to rupture the membranes, and should this not succeed, then, as a last resource, to deliver by art.

Thirteen cases of accidental hemorrhage occurred in the hospital during the author's mastership, in four of which the mem-

branes were successfully ruptured, three were delivered by natural efforts; three by the crotchet; two of the children were turned, and in one the feet presented. One only of the children was born alive; four were putrid. Two of the thirteen women died, one where the child was turned, and one where the head was lessened. A brief report of these cases is given in the work.

The next pages are devoted to hemorrhage between the birth of the child and the expulsion of the after-birth. His observations on this point are valuable, and deserve careful perusal. We can make room only for a general statement of the measures which he recommends, and the result of the cases which occurred in the hospital. Every thing having the slightest tendency to excite or overheat the patient is to be avoided, the uterus must be allowed gradually to empty itself during delivery, first, by expelling the head of the fœtus, and afterwards the shoulders and body, by subsequent pains, with little or no aid; and the attendant must pursue with his hand on the abdomen, the *fundus uteri* in its contraction, till the fœtus be entirely expelled, and continue the pressure for some time, to keep it if possible in a contracted state. The careful application of a broad binder concludes the precautionary measures. If after such precautions hemorrhage should occur, the placenta must be withdrawn, for the performance of which operation minute directions are given.

"There is one point, with regard to which our practice should not on any account vary; which is never to leave our patient for at least one hour after the placenta has come away, and she has been free from any unnatural discharge of blood, and even not so soon, if she be not composed and the *circulation quiet.*"

"Some females are subject to violent flooding with every child, no matter however sedulously guarded against; a similar predisposition is at times observed, with regard to retention of the placenta."

"Sixty-four cases of hemorrhage, between the birth of the child and the expulsion of the after-birth occurred in the hospital; in 6 of the 64, the hemorrhage continued after the removal of the placenta. In 45 the hemorrhage was *slight*, at least not alarming; and in the remaining 19, it was severe. In 17 of the 64, assistance became necessary in the course of the first fifteen minutes after the birth of the child; in 3 in 20, in 6 in 30, and in 7 in 45 minutes; in 12 in one hour, in 7 in 1½ hour, and in 8 in 2 hours. In 4 cases the time is not noted. In 13 of the 64 cases, the placenta, on the introduction of the hand, was found firmly adherent; in 8 cases the hour glass or irregular contraction was present, and in 43 cases its removal was easily effected. Five of the 64 were premature labours, viz. one at the fifth month, three at the seventh, and one at the eighth month. Seven of the 64 women died; two only from the effects of the hemorrhage; of the other five, two died of puerperal

fever, one of extensive disease of the vagina, with laceration; one of inflammation of the uterus, and chiefly of disease of the lungs."

This is followed by a brief statement of each of the different cases, with remarks which we recommend to the attention of our readers.

In treating of hemorrhage subsequent to the expulsion of the placenta, Dr Collins remarks, that the prevention of hemorrhage at this period depends much upon the manner in which the patient has been treated in the progress of the labour. Flooding will occasionally be met with after the removal of the placenta; yet when the patient has been judiciously conducted, when there is no local injury, and when the patient has not lost blood previously, it is very uncommon. The instances are few even in hospitals where the proportion must be much greater than in the private practice of any physician, owing to inexperience on the part of the pupils. This in the business of the hospital cannot be altogether avoided; but the consequences are in a great measure obviated by the instant assistance afforded by the resident medical officers, and after all, the patient is infinitely better treated than she would be if left either without all assistance, or with the officious aid of the ignorant.

The most frequent causes of hemorrhage after the removal of the placenta are, want of contractility in the uterus, pulling at the chord, imperfect application of the binder, and the non-observance of strict quietness. In the treatment of such cases Dr Collins trusts to pressure either by the hand or binder, the cautious introduction of the hand into the uterus, and the external application of cold. For his remarks on the subject, we refer to the work. When the hemorrhage has subsided the exhibition of an opiate is of decided benefit, a mode of treatment applicable to all severe losses of blood after delivery.

The extent to which stimulants should be administered will depend upon the exhaustion. When this is extreme Dr Collins recommends that they be given as freely as the patient can be induced to swallow them, but if the strength be not much affected, small quantities alone should be given. In cases of great debility after the hemorrhage has ceased, it is desirable to keep up the circulation in the lower extremities, by the application of heat to the feet. The patient must now be kept in a state of absolute quietness and carefully watched. Cold light nourishment should be administered from time to time, without permitting the patient to move. The severe pain in the temples consequent upon hemorrhage will be best relieved by the application of eight or ten leeches, and where aperients are necessary, the effervescing saline mixture, with the addition, if required, of some Rochelle salt, may be exhibited. The painful affections

in the joints occasionally met with, generally disappear by friction, warmth, and rest.

"Forty-three cases of hemorrhage subsequent to the expulsion of the placenta occurred in the hospital; *twenty* of which took place in the course of the first 15 minutes; *two* in 20 minutes; *one* in 30, and *two* in 45 minutes; *five* in 1 hour; *two* in 1½ hour; *three* in 2; *two* in 3; *one* in 4; *one* in 6; and *one* in 12 hours; one occurred on the 4th day; *one* on the 5th, and one on the 10th. In 22 of the 43 cases, the hemorrhage was severe; in 21 *slight*. In 8 of the 43, the hemorrhage was internal; in 5, both internal and external, and in 3 a portion of placenta remained adherent to the uterus. Two of the 43 were delivered before admission into hospital. In 31 of the 43 cases the introduction of the hand was necessary to check the hemorrhage. Four of these women died; one of rupture of the uterus; one of sloughing of the vagina; and two from the effects of the hemorrhage; in the early treatment of the latter two, due attention was not paid by those in immediate attendance."—Pp. 157–8.

These cases are each briefly noticed by the author, but though interesting, we cannot quote them from want of space.

The number 131 is great, but Dr Collins includes all kinds of hemorrhage, slight and severe. Under any circumstances, the loss of only four patients from hemorrhage subsequent to the birth of the child in 16,414 must be deemed a small proportion, and on reference to the cases, we find that in each of these four, there were causes which had a tendency to induce a fatal termination.

"*Seven* of the 131 cases occurred in women delivered of twins, and in all of these, the hemorrhage took place between the birth of the children and expulsion of the after birth. * * Of the 131, twenty-one occurred between the sixth month and the birth of the child, *sixty-four* between the birth of the child and delivery of the placenta, and *forty-three* subsequent to its expulsion; eighty-one of the total number of the children were males, and one hundred of the children were born alive."—P. 171.

It would appear that the greatest number occurred in the first pregnancy, the proportion diminishing at every succeeding one.

In his remarks on retention of the placenta, Dr Collins states that the true time to guard against it is during delivery, and when applying the binder. The means of prevention which he relies on are, the promoting the contraction of the uterus by leaving the expulsion of the child to its unaided efforts, thus allowing it to empty itself slowly and gradually; at the same time with gentle pressure following down its contraction, till after the child has been expelled, the uterus is found to occupy the cavity of the pelvis, and admit of the binder being advantageously applied, which should be delayed till the organ is felt to be firm and tolerably compressed into the pelvis. When, not-

withstanding this, it becomes necessary to introduce the hand, the chief object should be to induce uterine contraction, so as to expel the placenta, and by no means to drag it away. The most frequent cause of retention is the inactivity of the uterus, and Dr Collins has found in most cases the mere introduction of the hand into its cavity, or at most slightly stimulating it by the motion of the hand, sufficient to secure this object. Whenever there is any tenderness of the abdomen after delivery in such cases, he recommends the free application of leeches, the warm bath, and small doses of calomel, and ipecacuanha every third or fourth hour; and when the vaginal discharges are offensive, tepid injections of infusion of chamomile, with an eighth part of camphorated spirits, every sixth or eighth hour. When the patient suffers much after the removal of the after-birth, he recommends the use of calomel and ipecacuanha in the doses of a grain and half of each immediately after delivery, so as to anticipate any inflammatory attack. The dose may be repeated every fourth hour, its effects in the system being watched. In all cases of the delivery of the placenta, the membranes should be brought away as entire as possible, as the smallest portion, if retained, may give rise to several unpleasant effects.

The following is a summary of sixty-six cases of retention of the placenta, requiring the introduction of the hand.

"*Thirty-seven* from want of proper uterine action, *nineteen* from spasmodic or irregular action, and *ten* where the placenta was adherent. *Thirty-five* of the children were males, and *thirty-five* females; there having been four twin cases. *Fourteen* of the 70 were still-born; nine of which were putrid. In 24 of the 66 there was slight hemorrhage, and in the delivery had been forced. In *one* case the hand was introduced half an hour after the birth of the child; in *three* cases in *one* hour; in *one* in forty-five minutes; in *one* in 1½ hour; in *fifty* in 2 hours; in *two* in three hours; in *one* in 5 hours; in *seven* the time is not noted. In *four* instances the funis had been separated. *Two* of the 66 were premature births at the 7th month. *Six* of the 66 women died; *four* of puerperal fever, which was then prevalent in the hospital; *one* of inflammation of the uterus; and *one* (a feeble woman) sunk on the 8th day after delivery. In each of the sex, the placenta was retained by the irregular action of the uterus, &c. * * * Of the remaining 13 cases, when the placenta was retained by spasmodic action of the uterus, all recovered without any unpleasant symptom. In *eight* fully two hours had elapsed from the birth of the child before the hand was introduced; in *one*, 1¼ hour; in *two* 1 hour, and in *two* the precise time was not recorded. In *one* of the 13 the delivery had been forced. In *two* of the 13 the funis had been separated. * * * Of 37 cases where the placenta was retained by inaction of the uterus, *twelve* were attended with slight hemorrhage; *three* of the 37 were twin cases; in three the de-

livery had been forced; in *one* the breech presented, and in *two* the funis had been separated. In *thirty-two* of the 37, two hours had elapsed previous to the introduction of the hand; in *one*, 1 hour; in *one*, 45 minutes; in *one* half an hour; and in *two* the time is noted. All the women recovered favourably."—Pp. 181, 2, 8, 9.

From an inspection of the tables it would appear, that retention of the placenta occurred most frequently in first pregnancies, and that the ratio diminished in every succeeding one.

Dr Collins presents us with some very interesting facts regarding convulsions, an abstract of which we shall now lay before the reader.

"Puerperal convulsions," says the author, "occur almost invariably in *strong plethoric young women, with their first children*; more especially in such as are of a coarse make, with short thick necks." Dr Ramsbotham, on the contrary, states that *women with large families are equally or perhaps more liable* to be assailed. This opinion is thus met by Dr Collins. "Of nineteen cases recorded by Dr Joseph Clarke, sixteen were first children. Of thirty-six by Dr Merriman, twenty-eight were first children. Of thirty by myself, twenty-nine were first children. Thus of the 85 cases, 78 were first pregnancies. In 26 cases recorded by Dr Ramsbotham himself, he omitted to mention in *five* instances whether or not they were first pregnancies; and in the remaining 21 cases there were only two instances where they were not first pregnancies, except where the children were born prematurely at the sixth or seventh month."—P. 200.

Dr Collins states, that, during his residence in the hospital, there was but one case of convulsions, where the child presented preternaturally, and not one during Dr Labatt and Dr Clarke's residence. During these periods, 48,379 women were delivered. We may hence infer, that where the presentation is preternatural, there is little cause to dread the occurrence of convulsions.

We are still ignorant, he conceives, of the cause of convulsions, for he never could find in dissection any appearance to enable him to hazard any opinion on the subject. He states, that they cannot be produced by the irritation produced in the dilatation of the *os uteri*, because patients are not unfrequently attacked when the *os uteri* is completely dilated, and all the soft parts relaxed.

Of the thirty cases of convulsions which occurred in the hospital during his mastership, "twenty-nine were in women with their first children, and the other single case was a second pregnancy, but in a woman who had suffered a similar attack with her first child. *Fourteen* of the 32 children (two of the women having had twins) were born alive. *Twenty* of the children were males. In

eighteen of the 30, the convulsions subsided after delivery: in *ten*, the fits recurred both before and after; and in two, the attack did not come on till after delivery. In *fifteen* of the 30, the patients were delivered by the natural efforts; in *six*, delivery was effected by the forceps; in *eight*, by the perforation and crotchet, and in *one* the feet presented. *Two* of the children were born putrid. *Five* of the women died; * * *three* of which were complicated, with laceration of the vagina; *one* with twins; and *one* with peritoneal inflammation. * * * In *twenty-five* of the 30, the patients recovered favourably, in some the fits were extremely violent, in others, of short duration." Twenty of the 32 were males, a fact somewhat favouring the opinion of La Motte and Baudelocque, that puerperal convulsions occur most frequently in the case of male fœtuses.

The treatment adopted by Dr Collins consisted in bleeding freely, acting briskly on the bowels with calomel and jalap, bringing the patient under the influence of tartar emetic, so as to nauseate effectually without vomiting, and preventing her from injuring herself. He has never used camphor in the disease, and thinks that too much has been said in its favour. Contrary to the opinion of many of the best writers on midwifery, among whom may be mentioned Dr A. Hamilton, Dr James Hamilton, Dr Burns, and Dr Ramsbotham, ample experience has convinced him that opium is not only harmless, but beneficial in those cases where the fits continue after delivery. Its combination with tartar emetic, and sometimes with calomel, he states to be most beneficial.

To the cases which are recorded in a brief but satisfactory manner, we would direct the attention of the reader.

In rupture of the uterus or vagina, though even under the best possible treatment, little success is to be expected, still, since several cases have been of late recorded on undoubted authority, not only of complete recovery, but even of subsequent pregnancy and delivery, we are not left altogether without hope. Two instances of favourable termination occurred in the hospital during Dr Collins mastership, and one of the patients has since produced two living children. With the first, premature labour was brought on at the seventh month, but with the second, she went the full time.

The causes of rupture of the uterus are narrowness or deformity of the pelvis, disproportion between the child's head and the pelvis, occasionally disease of the soft parts, the operation of turning when performed before the soft parts are sufficiently dilated to admit the easy passage of the hand, or when performed with great haste, rash or violent attempts to remove a retained placenta, and the imprudent use of the forceps. There is one fact," says the author, "which clearly shows disproportion

to be a frequent cause, namely, its being oftener met with in the expulsion of male children; thus of thirty-four cases which I am about to state, twenty-three of the children were males; and of twenty mentioned by Dr M'Keever, fifteen were males. This is satisfactorily accounted for by the greater size of the male head."

"The part that most usually gives way is at the junction of the *cervix uteri* with the vagina, either anteriorly or posteriorly, and, according to my experience, equally frequent in both situations. Of 34 cases that occurred in the hospital, in 13 the injury was at the posterior part; in 12 anteriorly; in 2 laterally; in 1 the mouth of the womb was torn; and in 6 the particular seat of the laceration was not described. In 9 of the 34 the peritoneal coat of the uterus was uninjured, although the muscular substance of the cervix was extensively ruptured. One singular case occurred in the hospital, precisely similar to that recorded by Dr John Clarke in the Transactions for the Improvement of Medical and Surgical Knowledge, Vol. iii. where the patient died with all the symptoms of ruptured uterus. On examination, however, no rupture could be discovered, but on throwing forward the *fundus uteri*, numerous lacerations were observed in the peritoneal covering of its posterior surface, the injury being confined to this membrane.* I have never seen an instance where the fundus was ruptured, nor did Dr Clarke during his residence in the hospital meet with such an occurrence."—Pp 244–5.

When the accident has taken place, speedy delivery is very desirable. How this is to be effected will depend upon the circumstances of the case. Dr Collins thinks, that when the head presents and does not recede, lessening it, and delivering it with the crotchet, will be the most eligible mode. An assistant should fix the uterus as much as possible, the opening should be made very gently, and as much to one side as is practicable, so that the opposite side of the head may be fixed against the pelvis. If these precautions be not attended to, the child may recede and escape into the abdominal cavity. The forceps is seldom applicable, and the introduction is apt to force the head out of our reach. Little besides is gained, as, according to Dr Collins, the child dies shortly after the rupture takes place, and the dimensions of the pelvis are in general too small. The statement of Burns, that the child sometimes lives for hours after the accident, is contrary to the author's experience.

When the child escapes into the cavity of the abdomen, the best practice is cautiously to introduce the hand through the lacerated parts and bring down the feet. As soon as the child is removed, the placenta, and as much clotted and fluid blood

* See also Dr Ramsbotham's case, No. 96.

as can be reached must be taken away. The prolapsed intestines must be returned, and the lacerated edges placed as nearly in contact as possible.

"In cases where the laceration has occurred previous to the *os uteri* being dilated, it is thought the best chance of recovery would be, to open the parietes of the abdomen, cut into the uterus, and so extract the child. This is exceedingly rare. I never witnessed an instance of it, nor did Dr Clarke during his seven years mastership. The mouth of the womb is almost invariably so dilated by labour-pains, as to allow the attendant to introduce his hand without difficulty. Such a state of parts might exist where the uterus had been burst by a violent external injury, but is rarely met with as the mere effect of uterine action.

"Of the 34 cases, 4 were delivered by the natural efforts; 19 by the crotchet; in 7 the children were brought away by the feet; in 2 the delivery was effected by lessening the thorax and bringing down the breech; and in 2 the mode of delivery has not been stated. Two of the 34 children were born alive; three of those still-born were putrid; in three cases, the uterus was ruptured before admission; in three the child presented with the arm; four of the women died immediately after delivery; one in 2 hours; three in 4; one in 10; two in 14; one in 17; one in 24; one in 25; and one in 30 hours. Four died on the 2d day; one on the 3d; four on the 4th; one on the 5th; two on the 8th; one on the 9th; one on the 11th; one on the 14th; and one on the 24th day after delivery. The period of one death is not stated. Two recovered, Three of the 34 cases were complicated with convulsions. In four, psoas abscess formed previous to death.—Pp. 246–7.

Thirty-four cases thus occurred in 16,414 deliveries, or about 1 in 482, and on referring to the table, it appears that seven of the 34 were first pregnancies. Still Dr Collins thinks, that those who have previously suffered from difficult and protracted labours, run the greatest risk of rupture.

Dr Collins next discusses labours complicated with two or more children, and mentions, as a singular fact, that in Ireland the proportion of women giving birth to twins is nearly a third greater than in any other country from which he has been able to procure authentic records. "Thus in France, the proportion is one in every 95 births: in Germany, one in 80; in England, one in 92; in Scotland, one in 95; but in Ireland, the proportion is one in every 62. Of 129,172 delivered at the Lying-in Hospital of Dublin, 2062 gave birth to twins. Twenty-nine of the 129,172 produced three at each birth, which is in the proportion of one in 4450; one only gave birth to four." In the Philosophical Transactions for 1787, a case is recorded by Dr Gartshore of five children at a birth.

Dr Collins states, that when a woman carries more than two

children, they are usually expelled prematurely, and seldom live for any considerable length of time. He has, however, met with two cases where three were carried to the full time, and were afterwards reared in a state of health. To Dr Denman's statement, that "with more than two children, women seldom go to the full period of gestation, and even with two, there is a great likelihood of a premature birth, especially in a first pregnancy," Dr Collins demurs, as far as it regards a first pregnancy, since of 240 twin births, 72 were first pregnancies; 27 of the 240 were premature births; of which six only were first pregnancies.

After alluding to the fallacy of the different supposed signs of there being more than one child in the uterus, the author informs us, that, in many instances in the hospital, he has been enabled by the stethoscope to detect with accuracy, the existence of twins long before labour set in. He admits that it is difficult to decide when the action of the two hearts is synchronous, or the mother's pulse very frequent. This, however, is of little importance, as no information which we could receive on the point would alter the mode of delivery, and when one child is expelled, the presence of a second is easily ascertained.

In his management of twin cases, Dr Collins adopts nearly the same plan as Dr Burns, the only difference being, that, before interfering to deliver by the feet, he would, at the end of half an hour, puncture the membranes if entire, and if no progress be made in two hours afterwards, proceed to deliver as just mentioned. After cautioning the student not to interfere with the placenta of the first born child, till after the expulsion of the second, he mentions that he has seen several instances where the placenta of the first came away without interference, before the birth of the second child, and yet no hemorrhage ensued. The results of his hospital twin cases are thus given.

"*Two hundred and forty* women were delivered of twins during my residence. Of the 480 children, 422 were born living, 245 of the 480 were males *; 309 presented naturally; 73 with the breech; 60 with the feet; and 7 with the arm or shoulder. In a few instances the nature of the presentation was not noted. * * *Fifty-four* of the 480 children were premature. Of the 27 premature deliveries, *one* took place at the fifth month; *three* at the sixth; *eleven* at the seventh; and twelve at the eighth month. * * * *Three* of the 240 patients delivered of twins were attacked with *convulsions*. *Eight* of the 240 were delivered in the street, on their way to the hospital, of either one or both children.

* "Dr Burns observes, it is worthy of remark, that the number of male twins in the Westminster Hospital was only sixteen, whilst that of females was thirty." This we have shown is not the case on an extensive scale, as the number of males is greater, though not so much so as in single births."

Two of the 240 had *previously* given birth to twins. Many similar instances may have occurred, without their having been noticed in our observations, as little attention was paid to this circumstance. In *two* cases the children were *unusually large.* In *five* of the 480 children, either the face presented or was turned to the pubes. * * Of the mothers seven died; in five it was their first pregnancy."—Pp. 313-14-23-25.

Dr Collins, in his remarks on prolapsus of the umbilical cord, adverts to the great mortality in the lying-in-hospital at Paris, and contrasts it with that in the similar institution at Dublin. He acknowledges that the French accoucheurs save more children by their plan of treating the accident, than we do, but suspects that it is at the expence of the mother. He objects to turning, from the risk to the mother in the majority of cases being so great as to render its employment injudicious; no man being justified in hazarding the life of the mother to save that of the child. The forceps is very useful, when the head can be reached with safety; but from the funis generally descending at the commencement of labour, the life of the child is commonly extinct, before it becomes applicable. The practice found to be most beneficial, was keeping up the cord with the finger, assisted often by a piece of sponge. In the great majority of cases, however, it cannot be protected in this manner from pressure, because it is no sooner returned than it is forced down in another direction. A contrivance was adopted in some few instances for returning the cord completely into the uterus. A piece of twine was passed through a long gum elastic male catheter, so as to retain the cord exactly at its extremity, " and when thus fixed, a strong copper wire was introduced into the catheter, in order to render it sufficiently firm to carry up the cord; when elevated as far as practicable by these means, the wire was withdrawn, and the catheter retained in its position during the subsequent expulsion of the child." The trials were not sufficiently numerous to test its utility.

The following are the results of the cases of prolapsus of the funis occurring in the hospital. The total number was 97, and of these 24 children were born alive. None of the mothers sustained any injury. During Dr Clarke's mastership, 66 cases occurred, and 17 of the children were born alive. The mortality of the children in such cases must always be greater in hospital than in private practice, because patients are frequently admitted with the funis prolapsed and pulseless. Thus of the 73 children still-born under such circumstances in the hospital, in 15 the cord had prolapsed and ceased to pulsate on admission, and in the remaining 7, the complication was not detected till all pulsation had ceased. " *Twelve* of the 97 occurred in twin

cases; and in *seven* of the 12 it was the cord of the second child. Nine occurred where the feet presented, (not including two met with in twin children) which was in the proportion of *one* in every 14 of such presentations. Two only, where the breech presented, which was in the proportion of *one* in every 121 of such presentations; this approaches nearly the proportional average in all deliveries, which is *one* in 171⅛; four occurred where the shoulder or arm was presented; this is in the proportion of *one* in 9 of such presentations. *Seven* occurred, where the hand came down with the head. *Seven* of the 97 children were born putrid; *three* of the 97 were premature births, viz. *two* at the 7th, and *one* at the 8th month. From the table it would appear that prolapsus of the cord occurred most frequently in first pregnancies."

Dr Collins differs from Denman, Burns, and others, in recommending, in cases where the child is dead, the head to be lessened, in order that the labour may be the sooner terminated. Several cases are given in support of this opinion.

Want of space obliges us to pass over the next two subdivisions, devoted to sloughing of the urethra or neck of the bladder, and to patients dying in the hospital, and to conclude this notice with a brief abstract of the author's views on puerperal fever.

Some curious facts are stated regarding this affection. In private practice among the higher classes in Dublin, puerperal fever, accompanied with the low typhoid symptoms, so prevalent in hospitals, is scarcely known. The late Dr Joseph Clarke, in the course of forty-five years most extensive practice, lost only four patients from the disease. Among the lower classes of Dublin, its character is sometimes the same as in hospitals, but never to any great extent.

"It has been known to appear with great violence, at precisely the same period in situations very distant; for example, in the year 1819, it was epidemic in Vienna, Dublin, and Glasgow; in the two first named cities to a frightful extent. In 1829, in Paris, it was extremely fatal, while at the same time in London and Dublin it was prevalent to a considerable degree."

It became epidemic in the Dublin lying-in-hospital, on several occasions, when typhus fever was prevalent, and at other times when erysipelas occurred. "When Dr Labatt was master of the hospital, puerperal fever commenced its attack, on one occasion, in the following striking manner. A patient was admitted at a late hour at night, into one of the wards, labouring under a bad form of typhus fever, with petechial spots over her body; when observed next morning, she was removed into a separate apartment, where she died shortly after. The two females who occupied the beds adjoining her's, while she remained in the large ward, were attacked with puerperal fever and died. In October 1827, when I was resident as master, an occurrence precisely similar took place. A

patient in typhus fever was admitted at night into one of the labour wards, where she remained for some hours; the ward contained four beds. The three women occupying the other beds were attacked with puerperal fever, of whom *two* died. We had, however, eight months previous to this, a patient admitted under similar circumstances, in typhus fever, of which she died on the second day; none of the other patients were then attacked."—Pp. 381–82.

Patients affected with fever admitted into hospital when in labour, generally made good recoveries. The child was frequently expelled very rapidly, and seemingly without any effort on the part of the patient. The recovery of a patient attacked with typhus fever at the full period of pregnancy is interesting, considering that no complication proves more generally fatal than the premature expulsion of the child under such circumstances.

"Puerperal fever first became epidemic in the Lying-in-hospital of Dublin in the year 1767, about ten years after the institution was established, since which time it has been epidemic in the following years, viz. 1774, 1787, 1788, 1803, 1810, 1811, 1812, 1813, 1818, 1819, 1820, 1823, 1826, 1828, and 1829. The mortality in some of these attacks was not great, in others the contrary. In the year preceding my appointment as master, which took place November 1826, puerperal fever prevailed in the hospital to an alarming extent. In the succeeding 1827, the mortality from this disease was slight. Typhous fever was during these periods very prevalent in Dublin, many cases of which appeared in the hospital. In 1828 the attack of puerperal fever was much more severe, proving fatal to 21 women. It continued to increase in violence considerably, in the months of January, February, and the early part of March 1829, after which it disappeared, and for the four remaining years of my mastership, we did not lose a single patient from this disease."—Pp. 382–3.

The following exhibits the results of Dr Collins's observations regarding the period of the attack, the symptoms, duration, and termination of the diseases. "Of 88 cases, 1 had the disease well marked before delivery, 1 was attacked in six hours; 1 in 9; 1 in 10; 3 in 12; 1 in 13; 1 in 15; 2 in 17; 1 in 18; 1 in 20; 1 in 21; and 2 in 30 hours from delivery; 32 were attacked on the first day; 29 on the 2d; 8 on the 3d; 2 on the 4th; and 1 on the 8th day.

"The ordinary symptoms of puerperal fever, are a cold shivering fit; acute pain in some part of the abdominal cavity, with great tenderness on pressure; rapid pulse, varying from 120 to 140. In many instances the abdominal distress sets in without any previous shivering fit; thus of the 88 cases, only 33 commenced in that manner. In the very early stage, the tenderness is often most acute over the uterine region, but it generally diffuses itself rapidly over the centre of this cavity. * * As the disease advances, the

abdomen becomes distended, in some to a great amount, in others it is inconsiderable. The disease seems to run its course with great rapidity in most instances. In 56 deaths in the hospital, it proved fatal in the following periods after the date of the seizure, viz. 2 in 24; 1 in 27; 1 in 36: 9 on the second day; 15 on the third; 13 on the fourth; 4 on the fifth; 5 on the sixth; 3 on the seventh; 2 on the eighth; and 1 on the eleventh day. From this statement it will be seen, that the second, third, and fourth days are the periods at which death takes place in most instances.

"Forty-four of the 88 cases of puerperal fever occurred in women who had given birth to first children; 16 with second children; 9 with third; 6 with fourth; 7 with fifth; 2 with seventh; and 4 with eighth children. Thirty of the 44 delivered of first children died. Of 114 women who died in this hospital in 1819–20, 68 were first pregnancies. Fifty-four of the 88 gave birth to male children."—Pp. 383–4.

Dr Collins does not agree with those who believe that tedious and fatiguing labours predispose to puerperal fever, for, from a table, it would appear that of 88 cases, 71 were delivered within twelve hours; 80 within twenty-four hours; 1 was an arm presentation. The length of the labour in three instances was not noted. "Women whose constitutions are much impaired previous to labour are by many considered to be the most frequent subjects of this attack. The great proportion of women delivered of first children, whose general health has not usually suffered much, seems a strong fact in opposition to this opinion."

Some very interesting facts are mentioned regarding the good effects of thoroughly cleansing, fumigating, and ventilating the hospital, which at all times is kept scrupulously clean and well aired, in warding off the disease.

The result of Dr Collins's observations on the treatment of puerperal fever is,—"That general bleeding, except where there is a strong full pulse and the symptoms are of a highly inflammatory character, is injurious. On the contrary, *local* depletion, by the application of three or four dozen leeches, followed by the warm bath and opiates, all of which should be repeated according to circumstances, as often as the strength will permit, seemed most beneficial. These means, together with the active employment of calomel, conjoined with hippo or opium, aided by mercurial frictions, offer the best prospect of relief. Blistering the entire abdomen, *after* leeching had been pushed as far as could be, was found serviceable. In some instances, the debility from the very commencement was so excessive as to induce us to apply the blister at once, using calomel and stimulants at the same time."—Pp. 396–7.

The following is an outline of the morbid appearances observed in 37 of the 56 women who died of this disease. "The abdomen

being ostensibly the seat of the disease, the morbid appearances were principally found here; however, in *seven*, we observed fluid effused into the thoracic cavities, similar in appearance to that met with in the abdomen.* Effusion of fluid, although differing in character and quantity, was invariably found to have taken place. In 12 it seemed to be serum of a straw-colour; in 18 it was serо-purulent, something of the consistence of thick cream; and in 7, it appeared bloody serum, with quite a glutinous feel, when rubbed between the finger and thumb. *All* the cases but *one*, in which this latter description of fluid was found, occurred in January and February 1829. In these there was no lymph whatever formed; whereas in the other varieties, it was usually found deposited in large quantities, particularly in the vicinity of the uterus, but often over the entire surface of the intestines and abdominal serous membranes. In some where the effused fluid was scanty, the intestines were completely glued together by lymph. In almost every body examined, the peritoneum exhibited great increase of vascularity, nor could we discover in any instance, that the inflammation seemed to penetrate deeper than this membrane. The uterus in the great majority was quite natural in appearance; in some it was soft and flabby, and in a few, unhealthy matter was found in its sinuses. The ovaries in numerous instances had suffered much in structure from the effects of inflammation; being generally much enlarged, and so softened in most as to be broken in pieces by the least pressure."—Pp. 397-8.

The remainder of the volume contains cases of puerperal fever, observations on still-born children, and children dying in the hospital. As in other parts of the work, we find here numerous highly interesting and useful tables. Into this part of the work, however, we shall not enter, but conclude this somewhat lengthened notice with an extract showing the mortality of children in the early periods of life.

"In order to ascertain as far as possible the mortality in the *earlier* periods of life, I kept a correct registry during my residence in the hospital, of the *total* number of children each patient had previously given birth to, and of the number *alive* at the time of her delivery. The result of this registry is, that at different periods, the 16,414 women had given birth to 53,458 children; of these 28,532 were males, or rather more than $\frac{8}{15}$ of the entire, and 24,926 *females*. Of the 28,532 *males*, 17,437 were living, or rather more than $\frac{3}{5}$ths, and of the 24,926 females, 16,468 were alive or nearly $\frac{2}{3}$ds. Of the entire 53,458 children, 33,905, or more than $\frac{3}{5}$ths, continued to live at the time their mothers were last delivered.

* We were frequently able, in the progress of the disease, to predict the occurrence of fluid in the thorax, from acute pain setting in, in that region, and difficulty of breathing. It is singular that almost invariably, when the pain and distress extends to the chest, the patient ceases in a great measure to complain of the abdomen.

In taking leave of this treatise, it is almost unnecessary to add, that we strongly recommend it to the careful perusal of every student and practitioner, as one of the most useful obstetrical works with which we are acquainted.

ART. VII.—*A Treatise on Tetanus, being the Essay for which the Jacksonian Prize for the year* 1834 *was awarded by the Royal College of Surgeons in London.* By THOMAS BLIZARD CURLING, Assistant Surgeon to the London Hospital, and Lecturer on Morbid Anatomy. 8vo. London, 1836, pp. xii. and 221.

THE volume before us contains a preface, an introduction, four chapters, and an appendix. The author does not profess to give us any new opinions, either as to the pathology or the treatment of the disease, but merely to afford a view of the inquiries of others, and to supply such matter as his own observations have furnished him with, and that additional information which may be obtained from a careful collection and arrangement of facts. For this purpose he has taken 128 cases of the disease indiscriminately from various sources, and examined, analyzed, and arranged them in a table, distinguishing the sex and age of the patients, the nature of the injury, the time subsequent to the infliction of the wound, at which the disease first showed itself, the result and the length of time which elapsed between the appearance of the symptoms and the termination, a general view of the treatment, and the sources from which the cases have been obtained.

The first chapter contains a definition and an account of the forms and varieties, symptoms, terminations, statistics, causes, prognosis, and diagnosis of the disease. The remarks on these points appear to be accurate and full, though succinct. We shall make room for the statistics, being that portion of the chapter which we consider to be the most interesting.

"There are no data from which a correct estimate can be formed of the frequency of tetanus in comparison with other diseases, of the probability of its occurrence after wounds, or of its mean rate of mortality, either in the traumatic form, or in the idiopathic. Sir James M'Grigor alludes to several hundred cases observed in the campaigns in Spain and Portugal, very few of which were cured. Mr O'Beirne mentions, that out of about 200 cases, which he witnessed in the Peninsular war, not one recovered, and on a rough calculation it was generally considered to attack in the proportion of one in 200 wounded. Tetanus must occur oftener amongst an equal number of wounded after a battle than in civil life, in conse-

quence of the men being more exposed to the predisposing causes of the disease; on which account, and from the greater severity of the injuries, the majority of them being inflicted by fire-arms, the probability of recovery must also be much less. Mr Howship has published the particulars of thirteen cases of tetanus occurring after injuries of different severity, most of them being gunshot wounds, of which ten were fatal. Sir Gilbert Blane mentions, that the number of the wounded in the actions of April 1782, in the West Indies, was 810, of whom 20, or one in 40½, were attacked with tetanus, 17 of which number died. Mr Dickenson, surgeon at Grenada, met with 13 cases of traumatic tetanus; 9 died, and 4 were cured. He also witnessed 10 cases of the idiopathic disease, of which 6 terminated fatally. In the table are included 70 fatal cases, from which it appears that the disease is equally fatal at every period of life, from the age of 10 to 45. Idiopathic tetanus is far less frequently fatal than traumatic, but mortality from the former is much greater in warm climates than in the more temperate regions.

" Tetanus is both less frequent and less fatal in the female sex than in the male. Of the 128 cases in the tables, 16 were females, being to the males in the proportion of 1 to 8. Of these 16 cases, 4 only were fatal, whereas, out of the 112 cases of males, 66, or more than one-half died. The comparative rarity of tetanus in women is partly accounted for by their being less exposed, both to the predisposing and to the exciting causes of the disease; and since it is observed to occur more frequently in persons of a robust constitution, and of great muscular strength, females are supposed to be less susceptible of it.

" In most cases in the tables, the patients were attacked between the ages of 10 and 50, four only having occurred after the fiftieth year, and three before the age of ten. The duration of the disease before its fatal termination varies considerably, being dependent on those circumstances alluded to when describing the immediate cause of death, and it is also often influenced by the extent of the original injury. Wepfer is said to have witnessed a case in which tetanus proved fatal in three minutes, the patient having been an infant; but as sufficient time had not elapsed for the symptoms to show themselves in a well-marked manner, it may be fairly questioned, whether this was a genuine case of the disease. Another rapidly fatal case is mentioned by the late Professor Robison of Edinburgh. A negro, having scratched his thumb with a piece of broken china, was seized with tetanus, and in a quarter of an hour after this slight injury he was dead. In case 102, related in the Dictionnaire des Sciences Medicales, the disease proved fatal in twelve hours. In case 62, the patient died in twenty-four hours; in case 94, in twenty-six hours; and in cases 15, 53, and 96, in forty hours. Mr Dickenson mentions an instance of a negro, twelve years of age, in which the disease ended fatally in twenty-two hours."

Mr Curling then gives a case in which death ensued in ten hours,

in a boy ten years of age. "In the table, 53 cases were fatal within eight days after the appearance of symptoms; 11 by the following day; 15 on the second day after; 8 on the third; 7 on the fourth; 3 on the fifth; 4 on the sixth; 3 on the seventh; and 2 on the eighth, but very few having existed longer. In case 42, which is taken from Morgagni, the symptoms are related to have continued for upwards of twenty days before the patient was destroyed. The experience of Dr Lionel Chalmers in acute idiopathic tetanus in South Carolina, accords very closely with the average duration of the traumatic disease, as estimated from the table. He states, that patients generally die in twenty-four, thirty-six, or forty-eight hours, and very rarely survive the third day, but when the disease is less acute, few are lost after the ninth or eleventh day."—Pp. 28–32.

The second chapter is devoted to the pathology of the disease. In this the observations and opinions of the British and Continental writers are briefly stated and examined in a very satisfactory manner. The conclusions to which he arrives, are, 1*st*, That tetanus is a functional disease of the nervous system, the nature of which is completely unknown, and that there are no morbid changes peculiar to it, by which it can be recognized; 2*d*, that the seat of this peculiar morbid action is the *tractus motorius*, on either side, wholly, or in part, the superior being the portion generally affected; 3*d*, that the result of tetanic irritation in the *tractus motorius or medulla*, is a supply to the muscles of a stimulus to abnormal action, which, although limited to the muscles subservient to the will, is nevertheless totally without its control; 4*th*, that tetanic irritation is excited in two ways, *first*, by a noxious impression propagated to the medulla from distant nerves, (most probably sentient,) which impression may be caused by a wound, cold, or any other source of irritation; *secondly*, by inflammation in the brain, spinal chord, or their investing membranes, either idiopathic, or occasioned by direct injury to these structures, or extending continuously from the nerves of a wounded part to the medulla. *Traumatic tetanus* commonly arises in the first way, its origin in direct injury to the chord, as in inflammation extending from an injured nerve, being exceedingly rare. 5*th*, That in pure *traumatic tetanus*, the primary impression is confined for an indefinite time to the nerves of the part injured, being transmitted at some subsequent period to the medulla, and thus exciting the disease; 6*th*, that when tetanic irritation is once fully excited in the medulla, which is made manifest by spasmodic contraction in the muscles, the disease is independent of the exciting cause, and does not cease upon its removal; 7*th*, that the nervous system in some individuals is more disposed to take on this morbid action than in others, and that, as a general rule, males are more susceptible of it than females, and negroes than whites; 8*th*, that certain morbid states, as disorders of the digestive organs, the influence of particular climates, and a deleterious atmosphere, ren-

der the system more susceptible of this disease; *9th*, that the derangement of the vital organs in tetanus is the result of the inordinate action of the voluntary muscles induced by the disease, the disturbance and suspension of different functions, and even fatal exhaustion, being chiefly, if not solely, referable to the violent muscular contractions. In fact, the tetanic irritation directly interferes with, or affects no organ nor part whatever besides the system of the voluntary muscles; 10th, that tetanic irritation often gives rise to a determination of blood to the cord and its meninges, and to the nerves proceeding from the site of the wound, and to the affected muscles, the result of which in the medulla is an increase in the natural secretion of the arachnoid. The minute vascular injection of the cord, and of the nerves, together with the serous effusion at the base of the brain, and between the spinal membranes, being therefore nothing more than occasional effects of the disease, are by no means constantly present after death." Pp. 122–3.

The third chapter is devoted to the treatment of Tetanus. In this, Mr Curling reviews the various plans of treatment, local and constitutional, which have been proposed by different writers, and comes to the conclusion, that the disease being developed in three forms, each requires a different mode of treatment. *In pure acute tetanus*, if the disease be traumatic, and the patient be seen at the very commencement, topical means may be applicable. The constitutional treatment which he recommends consists in maintaining a free action of the bowels, allaying the spasms with tobacco, cold affusion, or any other equally effective sedative, and in the due exhibition of tonics and stimulants. In cases of *acute inflammatory tetanus*, by which he means these cases of cerebral or spinal arachnitis or of inflammation of the medulla itself, in which the tetanic irritation, excited by and superadded to the original disease is distinctly developed, purgatives, local and general depletion, counter irritation, and mercury, are what he depends upon. Should the spasms still continue, and the tetanic irritation remain after the exciting cause has been removed by powerful antiphlogistic means, the treatment recommended for pure acute tetanus or for the next form should be resorted to. In *chronic* tetanus "the following remedies may be variously resorted to, according to the particular circumstances of the call. Purgatives, opium, antimony, vapour and warm water baths, the carbonate of iron, and other tonics, electricity. If the case be attended with febrile or inflammatory symptoms, proper means must be taken to remove them. In such instances the exhibition of opium and other sedatives may often be advantageously combined with antiphlogistic treatment; and it should be borne in mind, that although the spasms may be partly allayed by depletion, their complete removal does not depend upon the extent to which it is carried; and that the debility resulting from

active depletion is invariably prejudicial to ultimate recovery from tetanic irritation."

The fourth chapter is devoted to the consideration of *tetanus nascentium, neonatorum vel infantum*, and the volume is concluded with an appendix, containing a table of 128 cases, to which allusion has already been made, and another of references to the different writings on tetanus, in the order of their publication.

We cannot conclude this notice without stating that the work does Mr Curling credit, and that it cannot fail to be useful as an introductory treatise to those studying the disease.

ART. VIII.—*Manuel de Medecine Operatoire, &c. A Manual of Operative Surgery, founded on Normal and Pathological Anatomy.* By J. F. MALGAIGNE. 2d edition, 18mo. Paris, 1837. Pp. viii. and 773.

WE have much pleasure in calling the attention of our readers to this very excellent compendium of operative surgery, which we are happy to see has now reached a second edition. The information which it communicates is full, accurate, and expressed with all the brevity consistent with perspicuity.

The first section of the volume contains instructions for the performance of operations in general, comprehending directions for incising, dissecting, and puncturing, the application of the cautery in its different forms, potential and actual, the application of ligatures, the various means of checking hemorrhage before, during, and after operations, the means of retaining the edges of wounds in juxtaposition, and those of diminishing pain during the operation. The second section is devoted to what are called the minor operations of surgery, comprehending bloodletting, the application of sinapisms, blisters, issues, and setons, vaccination, acupuncture, the extirpation of corns and warts, avulsion of the nails, extraction of the teeth, and other dental operations, the opening of abscesses and cysts, &c. But it would be useless to enumerate the contents, and it is a work of which an abstract cannot be given. We may state, however, in one sentence, that every operation, in all its forms, will be found described in this volume; that in all the great operations, before describing the steps, the author details the relative anatomy of the part; and that, small though the book be, the student will find in it information for which he may in vain search the common text-books of surgery in this country.

The price of the work is very moderate, being in this country six shillings for nearly 800 pages.

We can cordially recommend it to the student and junior practitioner.

PART III.

MEDICAL INTELLIGENCE.

CHEMISTRY.

New Compound of Iodine. By M. Aimè (From the *Comptes rendus Hebdomadaires des Seances de l'Academie des Sciences, Janvier* 1837.) M. Aimè presented to the Academy of Sciences a new compound of iodine, which he denominates *Iodal*, the iodine appearing to him to perform the same part in the production of this substance as chlorine in that of chloral.

It is formed by causing iodine at a low temperature to act on nitric alcohol. The iodal appears in the form of a liquid heavier than water. At first it has a reddish tinge from excess of iodine, but in a few days becomes colourless. It still retains a little nitric alcohol and nitrous ether, from which, however, it may be easily separated.

PHYSIOLOGY

Experiments on the Mechanism of the Motion or beating of Arteries. By M. Flourens, (from Comptes rendus Hebdomadaires des Seances de l'Academie des Sciences, 23 Janvier 1837.) Connected with the mechanism of the motion of arteries, two questions present themselves for consideration,—the cause which produces it, and the mode in which it takes place. M. Flourens considers these separately.

1. *The cause.*—Galen's opinion, that it depended upon a pulsific power, was founded upon the following experiment. Into the interior of an artery opened longitudinally, a tube was introduced, and a ligature placed so as to keep the artery in close contact with it. According to his statement, though the blood flowed into the artery beyond the tube, pulsation ceased. The experiment has been repeated by Vieussens, Magendie, and other physiologists, with an opposite result, and the following observations of M. Flourens corroborate their views. On introducing a goose quill into the aorta of a sheep, opened longitudinally, and fixing it in its situation by ligature, and even when a portion of the vessel was excised and the communication maintained by the quill, the blood was transmitted, and all the arteries connected with it continued to beat. M. Flourens adopts Harvey's opinion, that the cause of the motion of arteries is the impulse communicated by the flood forced into them by the contractions of the heart. He discusses and repels the objections offered to Harvey's doctrine by Lamure, and shows the fallacy of the conclusion drawn from the following experiment. Lamure included between two ligatures a portion of an artery full of blood, and because this portion continued to move, he concluded that the motions of arteries were not produced by the impulse of the blood. The fallacy consists in his overlooking the fact, that the motion observed was communicated from the artery above the ligature, and was not proper to the artery.

2. *Mode.* Galen believed this to be by successive dilatations and contractions. Harvey cut through an artery previously isolated, and, taking the cut end in his fingers, perceived it dilating at each each pulsation. Weitbrecht, struck with the difficulty of explaining the whole motion of an artery by its dilatation and contraction, supposed that in addition, dis-

placement or locomotion of the whole vessel took place. Lamure attributed it to elevation of the artery, and imagined that when he put one finger below and another above it, it started during pulsation so as to strike the latter. Arthaud having rendered the arteries of the mesentery straight in several animals, saw or believed that he saw the pulsation, which occurred when the arteries were curved, cease when they were straightened. M. Flourens repeated these experiments. To that of Harvey he objects, that it is very difficult to distinguish the pressure of the artery against the fingers, occasioned by the blood from its natural dilatation. Lamure has not stated correctly the result of his experiment, for when repeated by M. Flourens, the artery struck the finger placed above and that placed below it. Arthaud's experiment is unsatisfactory, in as much as, in drawing out the arteries to render them straight, they are weakened, and after all their motion does not altogether cease. The experiment of Harvey being then insufficient, that of Lamure inaccurate, and that of Arthaud incomplete; further inquiries appeared to be necessary. To determine the point, M. Flourens determined to investigate experimentally the different elements which concur in producing the motion of arteries, such as dilatation, locomotion, &c. Since the time of Bichat, who adopted the opinion of Weitbrecht, almost all physiologists have explained the pulsation of arteries by joining dilatation to displacement. Magendie has proved the dilatation of the vessel, and M. Poiseuille has invented an instrument to demonstrate it, though at the same time it shows this dilatation to be by no means considerable. To pursue the inquiry, M. Flourens contrived some instruments to exhibit any change which might take place in the diameter of an artery. These consist of small rings made of watch-spring divided at one point. These are formed in such a way, that when they embrace the artery both ends meet and no more. They had sufficient flexibility to yield on the smallest dilatation of the vessel, and when this ceased, their elasticity caused them to close. The smallest dilatation, then, of an artery will be appreciable, and they have this further advantage, that, from their being capable of being opened, they can be easily applied; and being of all sizes, one can be selected which will exactly embrace the artery, a condition quite indispensable for the accuracy of the experiment. One of these being applied to the abdominal aorta of a rabbit, the cut ends appeared to be alternately separated and approximated. This was repeated several times on different rabbits and always with the same result. On applying one of these rings to the abdominal aorta of a dog, the effect was more distinct, as might have been expected from the greater size of the vessel. From what has now been stated, it is evident that dilatation does take place during pulsation. To ascertain whether displacement takes place, and whether this is in direct proportion to the curvature of the vessel, M. Flourens began by examining what occurs at the angles or flexuosities of arteries. Here he observed a rise and fall, especially at the arch of the aorta, which was raised from the vertebral column. In the mesenteric arteries it was still more distinct, for these being in a great measure free or at least merely sustained by a fine membrane, the displacement can be the better observed. By increasing the curvatures the displacement was increased, and *vice versa*. The same was observed in the straight arteries, though to a less extent. To ascertain whether the artery was elongated, M. Flourens marked with colour a point of the primitive carotid, and, placing a needle below it, observed it alternately advance and retire. Thus he concludes, that, in the pulsation of an artery, there are three primitive actions, dilatation, displacement, and elongation. It became desirable to ascertain to what physical quality of the organ these actions are due. M. Flourens thinks that it is elasticity. Bichat, Sir E. Home, D. Blainville, Beclard, and Chevreul have made us acquainted with the peculiar tissue to which this is owing, and Magendie has deduced from it the nature of the jet of blood which escapes

from an open artery. According to him the jet continues under the influence of the contraction of the arteries, and is jerked by the contraction of the ventricles. Upon this M. Flourens remarks, that all the actions constituting the compound action of the artery, may be accounted for by the impulse of the blood and the elasticity of the vessel. Supposing the artery to be full, as it is in its ordinary state, each new quantity of blood forced into it by the ventricles cannot proceed without distending it in length and breadth, and bringing it nearer to a straight line, throughout its whole length.

The beating or whole motion of an artery depends on its elasticity.

PATHOLOGY.

Microscopical Observations on the fluid contained in encephaloid Cancers. By M. Gluge. (*From the Comptes rendus Hebdomadaires des Seances de l'Academie des Sciences, Janvier* 1837.) In all encephaloid tissues, in whatever organ they may be developed, a whitish liquid, of the consistence of phlegmonous pus, is found. On examining it by the microscope, about three-fourths of it are found to consist of globular bodies. In order that they may be properly studied, they must be examined under a magnifying power of at least three hundred diameters. They are not all of the same size. The diameter of the smallest is larger than that of the globules of pus, and about 0.00031496 of an inch, and their form, though irregular, is somewhat spherical. Their surface is unequal, and marked with points and blackish curved lines, and pellucid borders. These globules are found not only in encephaloid tissues themselves, but also in parts of the affected organ apparently sound. Besides these globular bodies, encephaloid tissues contain a considerable number of very distinct crystals, of different forms and size, some of which are 0.00047244 of an inch in length. These, perhaps, are formed only after death.

M. Gluge is of opinion that morbid productions are more frequently crystallized than is thought. He has found that the articular concretions formed in gout contain numerous crystals in matter formed by exudation, the diameter of which is not double that of the globules of pus.

THERAPEUTICS AND MATERIA MEDICA.

An Experimental Inquiry into the relative Physiological properties of Iodine and its compounds. By Dr Cogswell.—The following may be noticed as among the facts observed by Dr Cogswell, the gentleman to whom the Harveian prize was lately awarded, for the best dissertation on the relative physiological and medicinal properties of iodine and its compounds. Dogs and rabbits were the chief subjects of his experiments.

Tincture of iodine injected into the veins, so far from being inert, as indicated by Magendie, quickly destroys life with symptoms analogous to those occasioned by hydriodate of potash. Two drachms, that is to say, twice the quantity employed by the above named toxicologist, proved fatal to a well sized dog.

Devergie, who was the first to institute a formal investigation into the physiological action of hydriodate of potash, found that dogs were soon killed by it when thrown immediately into the circulation, and that the same animals died within three days from the effect of two or three drachms, placed in contact with the inner membrane of the stomach, the organ exhibiting ecchymoses and other consequences of irritation. These latter results, upon which some recent observations were calculated to throw doubt, have been confirmed by the present writer, who also destroyed animals within a short period, by introducing the salt beneath the skin. A drachm of hydriodate of potash thus administered simply produced local irritation in an experiment of Devergie; but the quantity should be somewhat larger in proportion to the strength of the animal.

The iodides of iron, zinc, lead, and mercury, seemed rather to follow the action of the ordinary compounds of the bases, than that of iodine itself. A singular and interesting result ensued from throwing the hydriodate of iron into the vein of a dog; bloody alvine discharges repeated at short intervals for several hours, during which the animal kept constantly moving, and after death, the whole tract of the intestinal canal displayed increased vascularity and bloody effusion. The rectum had its inner membrane for the most part rendered intensely purple, from the minuteness with which its vessels were injected with coloured globules. In the lungs were numerous ecchymoses giving a beautiful spotted appearance to these organs.

Dr Cogswell has repeatedly succeeded in detecting combined iodine through the various solid textures of the body by means of starch, but could never obtain it in its free state. When added to a portion of urine, it did not seem capable of dissolving without previously undergoing combination, so that it will generally be in vain to look for free iodine in this quarter. By the same test he has ascertained, that iodine vaporizes several degrees below zero of Fahrenheit, and that a freezing temperature does not prevent it rising from its solution in water or in hydriodate of potash, although the fluid round the sides of the vessel may be congealing.

On the Use of Indigo, as a therapeutic agent against Epilepsy. By IDELER. (Medical Intelligence published by Medical Union in Prussia, No. vi. 1835.) *Observations on Indigo, as a curative remedy in Epilepsy and other spasmodic diseases.* By Dr ROTH of Mainz. (From the New Scientific Annals (Neue Wissenschaftliche Annalen,) published by Dr Hecker, Vol. 1st to 4th. Number I. Berlin 1835.) Indigo was first employed as a therapeutic agent in the treatment of epilepsy, by Lenhossek, and afterwards by Grosheim and others. Its efficacy was afterwards tried by Ideler, a Prussian physician; and among 26 patients, in whom indigo was experimentally tried, 6 individuals recovered completely; 3 were dismissed cured, and had first after intervals of from 8 to 12 months a relapse, under the operation of causes, which might have induced epilepsy; of 11 patients, the condition underwent an essential improvement; and in 6 individuals no change took place. At first, the patients were wont frequently, though without effort, to vomit; after some days this ceased, and in its place, there took place diarrhœa, which at first caused from 6 to 8 motions daily, and was occasionally accompanied with moderate colicky pain, but afterwards moved the bowels only two or three times daily, but with fluid motions, and continued so long as the indigo was used, but without impairing the appetite or digestion. The curative reaction of the nervous system upon the agent was principally indicated by this circumstance, that the epileptic symptoms in the first period returned more frequently, and attained a higher degree of intensity, but afterwards became less frequent, milder, and at length entirely disappeared.

Most usually the indigo was exhibited in the form of electuary, with a proportion of the aromatic powder, because, alone, it is very disagreeable to the patient. At first it was administered in the dose of one scruple; this was quickly increased to a drachm and more, so that daily from half an ounce to one ounce might be used for a series of months without difficulty.

In a paper in Graefe and Walther's Journal, entitled Contributions to Casuisticks, by D. Moritz Strahl, of Berlin, are some observations on the operation of the same remedy in spasmodic diseases. In the trials made by Dr Strahl with this agent, in 10 cases of inveterate epilepsy, in which it was given in progressively increasing doses, of from one scruple three times a day, to half an ounce daily for the space of 10 weeks, it produced not the smallest effect. During its employment, the stools became blue, and the urine assumed a dark-green colour. Excepting slight inconvenience

of the stomach, no operation of the remedy upon the organism could in general be observed. On the other hand, indigo, in 4 hysterical females, one of whom was already in the age of decrepitude, evinced the presence of very remarkable phenomena. In all, after about two drachms daily had been taken, violent pain in the region of the kidneys, like colic, took place, the urine assumed a deeper intensity of colouring than in male patients, and at the bottom of the vessel was observed no trifling quantity of fine indigo powder. The intense renal pain continued for 4 days, and at length subsided under the continued employment of an oily emulsion. In one case only did there ensue a remission of the spasms, and the patient was not entirely well 3 months after the cure was completed. The operation of the indigo, further, on the womb, was very remarkable, since, in two cases, an amenorrhœa was radically cured, while the spasms were throughout undiminished. In two cases of St Vitus's Dance, in a boy of 12, and a girl of 9 years, the indigo was throughout unavailing.

The different clinical trials made with indigo by Dr Roth furnished the following results. In epileptic cases, the remedy evinces almost always the same immediate operation; but its subsequent consequences are regulated by the degree of vitality of the nervous system of the patients, and the kind and duration of the epilepsy. These effects are beneficial in all idiopathic epilepsies, curative in those of this class which have not been of long continuance; and in very chronic idiopathic epilepsies, indigo diminishes the violence and the frequency of the paroxysms. Of symptomatic epilepsies, only a few are alleviated by the use of indigo, none are cured.

Physiological operation of indigo. In almost all patients, the use of indigo is succeeded first by squeamishness and vomiting, though the substance itself be tasteless and inodorous. The violence of the emetic efforts appears to be regulated by the individual irritability of the gastric nerves of the patients. Females vomit more readily than males. The vomiting itself is at first continuous, that is during the continued use of the agent, and often so violent that the indigo must be given up; but after several days it ceases. It has otherwise the peculiarity that the contraction of the abdominal muscles, and the diaphragm is much less violent, and the debility is less considerable than after vomiting induced by other means. The contents of the stomach present nothing unusual, even in respect to taste, only they are of a very dark blue colour, and the fluid is intimately mixed with the indigo, from which it may be inferred that the gastric juice contributes very much to the digestion of the indigo.

Diarrhœa, the second physiological effect of indigo takes place in general first when the vomiting ceases; yet from this many patients remain altogether exempt. In general diarrhœa when once commenced, continues so long as the patients take the indigo, and increases in intensity during the continued use of the remedy. The motions are generally soft, semifluid, and of a dark blue-black colour. The vomiting and diarrhœa are frequently accompanied with slight colicky pains in the stomach and bowels, which, however, may be so violent as to require the indigo to be given up. Those patients who are exempt from vomiting appear to be attacked with more violent colicky symptoms. By the continued diarrhœa there is formed a species of gastrosis (irritation of the mucous membrane of the stomach and bowels,) with loss of appetite, headach, and giddiness, and sometimes the sense of dazzling lights in the eyes.

The third physiological operation of indigo is seen in the urinary secretion. The urine assumes a dark-violet colour, deepest in the morning. On the quantity of the urine the agent seems to exercise no influence.

Dr Roth did not observe coloration of the sweat. But it is remarkable, that one patient, after the use of indigo for several weeks, fell often into slight convulsions, similar to those which ensue on the employment of the nitrate of strychnia.

The dose of indigo is regulated by the irritability of the stomach. It is best to begin with grains, and rise gradually to drachms, or even several ounces daily. Dr Roth gives the preference to the form of electuary, with proportional additions of the aromatic powder, or Dover's powder, as correctives. In the formula employed in the Hospital of the *Charité* at Berlin, half an ounce of powdered indigo, rubbed up with a few drops of water, is mixed with half a drachm of aromatic powder, and one ounce of simple syrup, and to be taken in divided doses in the course of the day. Many even take from a half to two ounces, twice and four times daily for the space of several months.

In what manner indigo operates, and to what class of medicines it belongs, is very difficult to determine, and certainly cannot be inferred from its constituent parts. Probably its active principle is seated in the peculiar colouring matter. Though in many respects the operation of indigo is similar to that of tartar emetic, yet this attacks more forcibly the energy of the organism. In all the patients after the use of the indigo, the spasms were at first more frequent and more intense, but shorter in duration; but after some weeks their intensity was manifestly abated, and at length they entirely disappeared. All the patients cured by indigo laboured under idiopathic epilepsy, that is, epilepsy without symptoms of organic lesion. Among those who were improved were several idiopathic and symptomatic cases. In one case of epilepsy, which ensued after a remarkable contusion of the head, after the employment of indigo, a moderately long intermission took place. A boy of 16 years of age, who had laboured for eight years under St Vitus's Dance, and then was attacked with epileptic spasms, was cured of all the symptoms by the use of indigo for six weeks. Of 26 epileptic patients treated by means of indigo there recovered; 4 males and 5 females; 3 males and 8 females were improved; and 4 males and 2 females remained uncured. In confirmation of the forgoing inferences, the author communicates the history of two cases in which the treatment by means of indigo operated beneficially, after other means had been found unavailing.

PHYSIOLOGY AND MIDWIFERY APPLIED TO LEGAL MEDICINE.

Case of Vagitus Uterinus, or Crying of the Fœtus within the Womb. By Dr Gustavus Adolphus Michaelis, Private Teacher in the University, and Assistant in the Lying-in-Hospital at Kiel. Abhandlungen aus dem Gebiete der Geburtshülfe. Kiel, 1833. P. 244. *(Second Treatise on Turning and Foot Presentations.)*—On the 26th of January 1826, Dr Michaelis was summoned to give his assistance to a woman named Lau, in Brunswick. She had undergone her first labour about a year and a-half previously. When he arrived about noon, he found the pains violent, the waters already discharged a considerable time, and one shoulder lying presenting in the orifice of the *uterus*, which was fully dilated. As on more careful examination he conjectured that the feet were on the left side, he first introduced the right hand, but found it impossible to reach them, as the feet were on the right side, and the womb was very violently contracted. After he had taken some blood from the arm, and was on the eve of introducing the left hand, he, as well as the mother and the assisting midwife, heard the child distinctly cry; and scarcely had he directed the attention of those present to the sound, when the infant, at two several times, allowed them again to hear the same wailing tones. The sounds were so unequivocally the *cries* of a child, that the bystanders, however incomprehensible it was to them, did not for a moment doubt the accuracy of the observation.

When Dr Michaelis introduced the hand, he found the face on the left side not far from the orifice of the *uterus;* the chin had receded from the breast, and the face was directly immediately below. He thought it likely that air had entered when he withdrew the right hand. The feet he

now easily reached. Meanwhile the child would, in the further course of turning, he argued, turn with the belly uppermost, which he had hitherto prevented as to the trunk. Dr Michaelis was so much the more astonished to find the head with the chin firmly fixed in the arch of the *os pubis*, while the hind-head had already entered the pelvis. The child had still given signs of life; and, alarmed as Dr Michaelis was that it might now die, he thought seriously on turning the head. Meanwhile he attempted this, according to all the known rules, but entirely without avail. The powerful *uterus*, and the violent contractile energy of the vagina, opposed to his efforts insurmountable resistance. Exhausted with the effort, he desisted for a moment, and considered what might be proper to be done. It was the first case of the kind in which he encountered so great difficulty. It suddenly occurred to Dr Michaelis, that, as he felt the hind-head again in the pelvis, it afforded no reason, so far as he knew, to think that the head might not be thus delivered. He immediately applied the forceps, and, in the easiest manner, brought the head into the world with a few efforts.

The child, however, was now dead, and Dr Michaelis immediately bitterly reproached himself, that he had ignorantly put the mother to pain, and sacrificed the child, through want of information on this variety of case. These uneasy feelings, however, he calmed by the melancholy consolation, that any other person could not have done better, since he ascertained that he had done all according to the strict rules of the schools.

The child was very large, weighed above nine pounds Hamburgh weight, and had a particularly strong head.

The cause of this inverted turning he is inclined to ascribe to a spasmodic irregular contraction of the womb, and to the circumstance, that the chin of the child had receded from the breast; in consequence of which the head naturally follows less the motions of the trunk.

The foregoing case is in several respects, both obstetrical, physiological, and medico-legal, highly important. As a difficult and unexpected obstetrical case, it suggests several serious speculative and practical questions. But as these, as far as they are capable of resolution by a single case, are resolved, by the facts now detailed, it is superfluous to dwell on this part of the case.

It is chiefly in the physiological and medico-legal point of view that we propose to make a few observations on this case.

The circumstance of the fœtus crying, and consequently breathing within the womb, has been very generally denied as anatomically impossible, both by physiologists and authors on legal medicine. Haller, from considering the physical circumstances in which the *fœtus in utero* is placed, floating in the *liquor amnii* with the orifice of the womb sealed, was inclined to deny it absolutely as impossible, but was obliged to admit that intra-uterine sounds had been heard upon the authority of Groenwolf, a writer in the *Journal des Scavans* for 1686, (No. 16), and Capellen, as recorded in the Breslau Collections for 1716 (p. 516.) The vaginal *vagitus* and respiration, which he admitted on the authority of Bernard Idema, Groeser, professor at Goettingen, and Gorter, is more easily understood, and its explanation will be noticed forthwith. Of the importance of the circumstance of intra-uterine and vaginal respiration in forensic medicine, Haller was completely aware: "If," says he, "the fœtus can breathe within the *vagina*, the condition of the lung may be changed from the compact and sinking to the elastic and buoyant, and the condemnation of a mother in a case of infanticide could not rest on the floating of the lung of the infant to which she has given birth, as the possibility of respiration in the vagina affords a clear means of evasion." After considering the difficulties and obstacles to the due dilatation of the chest within the *vagina*, he allows that the vaginal respiration and crying can take place only in favourable circumstances, and cannot be absolutely denied.

With regard to intra-uterine respiration and crying, this physiologist arrived at a conclusion which reflects the highest credit on his philosophical caution and acuteness, in so far as its accuracy has been most completely confirmed by the experience of recent accurate observers.

It is manifest, he concludes, that uterine cries, if in truth they are ever heard, require a peculiar case in which the membranes have been ruptured, which not unfrequently takes place before birth, and is a uniform occurrence in long and laborious parturition, in the commencement of which the waters have escaped, and in which, nevertheless, some days after, a fœtus still alive follows.

Provided air be admitted, and the head be also turned in such a position that it may receive air from the vagina, it may be admitted at length that the fœtus may both breathe and cry.

But that all these conditions are extremely rare and incompatible with the state of the fœtus, in which the unbroken membranes retain the waters, is easily apparent. It is, therefore, not wonderful that eminent and acute physiologists withhold their faith from these premature cries."

In arriving at the conclusion, that intra-uterine cries and breathing can only take place in cases in which the membranes have already given way, and the waters have been for some time evacuated, and consequently chiefly in cases of laborious, difficult, and tedious parturition, Haller has shown his usual sagacity in anticipating the results, which were subsequently to be established by accurate observation and indisputable testimony. From the authentic cases of this phenomenon which have occurred, and most of which have at different times been recorded in this Journal, it results that it can no longer be positively asserted that the fœtus never cries within the womb of the mother. But it also results from these cases, that these cries and breathing can only take place in cases in which the membranes have given way, the waters have been discharged, the orifice of the *uterus* is considerably dilated, and consequently air has entered to supply the place of the discharged waters. This will appear to result more clearly from the cases recorded.

In the case recorded by Dr Zitterland, though it is not stated whether the membranes were burst, and the waters discharged or not, yet this must be presumed.

In the case detailed by Dr Holmes, there is no doubt that this must have been the case, as the mouth was felt in the dilated orifice of the uterus, and allowed the finger of the attendant to be introduced into it.

In the more distinctly detailed case given by Dr Collins, and recorded in the forty-sixth volume of this Journal, (p. 243) it is expressly stated, that "though the head was at this time high in the pelvis, the soft parts were partially dilated, and the waters but a short time discharged." In the case now detailed from Dr Michaelis we are distinctly told that the waters had already been discharged a considerable time, and that the orifice of the womb was fully dilated. In the latter case, indeed, the presenting part was not the face, as might be, in cases of this description, anticipated, but the shoulder; but Dr Michaelis, at a subsequent part of his narrative, suggests, that air may have entered the *uterus*, while the right hand was withdrawn; and when the position of the head and chin, in relation to the breast, is considered, it cannot appear extraordinary, that a sufficient quantity of air may have entered the *uterus*, to enable the fœtus to inspire, and thereby to cry.

We here perceive that the conjecture of Haller, regarding the conditions requisite to the occurrence of intra-uterine respiration, is completely confirmed. Nor is it wonderful; for, in point of fact, and accurately speaking, the respiration which takes place in such circumstances is no

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* Elementa Physiologiæ, Lib. xxix. Sectio iv. § lvi. p. 401. Tom. viii. Lausannæ, 1778.

longer *intra-uterine*, in the strict sense of that term, the air having been admitted to displace the water. It must not be omitted, that Dr Beck, the latest, and perhaps the best authority in medical jurisprudence, admits this species of intra-uterine respiration, and quotes, in illustration of the fact of its occurrence, the case given by Dr Holmes, and another case given by Mr Tomkins of Preston, in 1834. The two additional cases given by Dr Collins and Dr Michaelis illustrate and confirm the inference, as far as it is susceptible of confirmation.

The most important question which the knowledge of these cases suggests to the consideration of the medico-legal inquirer is, whether, in cases of suspected infanticide, when the lungs are found of a bright-red colour, crepitating and buoyant, it might be argued that such changes might have taken place, in consequence of intra-uterine or vaginal respiration, and that, accordingly, the accused party was guiltless of the crime imputed? To determine this question, it would have been important, had we known what was the state of the lungs in the case of the infant mentioned by Dr Collins, and that delivered by the forceps by Dr Michaelis. There is good reason to believe that the lungs could not in such cases be thoroughly inflated, and in all probability, parts of them would still be solid, uncrepitating, and unbuoyant. And in such circumstances, it is clear that it is the duty of the cautious medical jurist, whether acting as adviser or as witness, to frame his opinion in such a manner as to throw any chance of doubt on the side of the accused. It can only be in cases in which the lungs are throughout crepitant, elastic, and buoyant, that he can assert that the infant must have breathed perfectly, and in giving such an opinion, he will at once make as near an approach to the probable state of the case as is practicable, and not have to reproach himself with having recklessly perilled the character and life of a fellow creature, who may not have been guilty of the offence.

It is certainly manifest, as Dr Beck has observed, that if full and complete respiration took place under such circumstances, the circumstance alone indicates that the passages were so capacious as to cause no impediment to prompt and safe delivery, and consequently, in such a case, no question of a criminal nature can ever be imputed.

Dr Beck is inclined to think that intra-uterine or vaginal respiration can only take place in the case of face presentations; and as these are by no means common, he infers that it can only occur under very particular circumstances, for instance, as in the cases by Dr Holmes and Mr Tomkins, in consequence of the introduction of the finger into the mouth of the child. It appears, however, from the case of Dr Michaelis, that the phenomenon is not confined to cases of face presentation, since in that instance the presenting part was the shoulder.

In conclusion, it must be allowed, that though it is important for the medical jurist to be aware of the possibility of the phenomenon, yet, as no rational or cautious person would give a decided opinion upon any single circumstance, but would derive his conclusions from the whole, little practical difficulty ought in this case to occur. If there be doubt, it must be allowed to be on the side of the accused; and it must only be in clear and unequivocal cases that a decided opinion should be given.

MISCELLANEOUS.

Centenary of the Royal Medical Society of Edinburgh.—The year 1837 being the hundreth from the institution of the Royal Medical Society of Edinburgh, it was unanimously resolved that the event should be celebrated by a dinner of the members. A committee having been appointed to make the preliminary arrangements, it was decided, in compliance with their recommendation, that the dinner should take place on the 17th of

February,—admission being restricted to members of the Society, with the exception of the Principal of the University, and the Presidents of the Royal Colleges of Physicians and Surgeons of Edinburgh, who should be invited as visitors. Dr Hope, from his talents and distinction, his long standing in the Society, and the warm interest he had always shewn in its welfare, was unanimously considered the most eligible person to act as Chairman; and the wishes of the Society having been communicated to him, he readily consented to undertake that office. It was further decided that the four Presidents should act as croupiers; and that Mr Carpenter, the senior President, should be requested to deliver an oration immediately before the dinner.

These preliminary arrangements having been agreed upon, and the committee requested to continue their services, they caused circulars, giving notice of the dinner, to be sent to the members of the Society in all parts of Great Britain and Ireland. Owing to the season of the year, and the very general prevalence of the epidemic influenza, members from a distance were for the most part prevented from attending. Many, however, availed themselves of the opportunity of expressing their unabated interest in the Society, and their regret that circumstances prevented them from being present. Of this number were Sir James Macgrigor, Dr Bostock, Dr Yelloly, Mr Travers, Dr Fenwick of Durham, Dr Stroud, (the historian of the Society,) and Dr Conolly of Warwick. Dr Macdonnell of Belfast, a very old member of the Society, who was unable to join in the celebration, communicated through Dr Thomson his intention of placing at the disposal of the Society the sum of L.15, to be given as a prize for the best Essay on the Pulse and Respiration. Two of the honorary members residing in Edinburgh, Professor Thomson, and Dr Abercrombie, were also unavoidably absent; and the advanced life and infirm health of the venerable Principal Baird, deprived the Society of the company of one who has always evinced a warm and paternal interest in its welfare, and who has almost uninterruptedly honoured with his presence the annual dinners of the members.

Notwithstanding these unfavourable circumstances, on the appointed day one hundred and sixteen individuals assembled in the Hopetoun Rooms, and the meeting was characterized by the utmost harmony and good-feeling.

Notice to Students of Medicine,—The Harveian Society of Edinburgh have fixed on the following subject for their Prize Essay for the year 1838, viz.—"*An Experimental Inquiry into the Physiological Properties of the Ergot of Rye.*"

Dissertations on this subject must be transmitted to either of the Secretaries, on or before the 1st day of January 1838. Each Dissertation must be accompanied by a sealed letter, containing the Name and Address of the Author, and inscribed on the back with a Motto. The same Motto must also be prefixed to the Dissertation to which the Letter belongs. None of the sealed Letters are ever opened, except that bearing the same Motto with the successful Essay.

The Prize given by the Society, to the successful Candidate, is either a Copy of the Quarto Edition of Dr Harvey's Works, published by the Royal College of Physicians of London; or, if the Candidate prefer it, a Silver Medal of the same value, with a suitable Inscription.

The Candidate is at liberty to employ his Dissertation afterwards, in any way he may think proper: And accordingly, some Dissertations submitted to the Harveian Society, have, in consequence of publication, been productive of considerable honour and emolument to the Authors.—By order of the Society,

RICHARD HUIE, M. D., 8, George Square,
P. D. HANDYSIDE, M. D., 11, Hope Street, } *Secretaries.*

Edinburgh, 11th March 1837.

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END OF VOLUME FORTY-SEVENTH.

No. CXXXII. will be published on the 1st of July 1837.

EDINBURGH:
PRINTED BY JOHN STARK, OLD ASSEMBLY CLOSE.

JUN 1969

WESBY

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